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ABSTRACT

This publication is a guide for California colleges and universities wishing to prepare for earthquakes. An introduction aimed at institutional leaders emphasizes that earthquake preparedness is required by law and argues that there is much that can be done to prepare for earthquakes. The second section, addressed to the disaster planner, offers planning tips for a disaster management team, and how to set goals and plan updates. The third section looks at earthquake preparedness, examining particularly how to assess hazards, reduce hazards, educate the campus community, and acquire emergency equipment and supplies. The fourth section describes and outlines earthquake response including: typical problems, the incident command system, developing response priorities, management organization, supporting data for the campus plan, mutual aid agreements, department and building emergency plans, and emergency response training. A final section describes post-disaster recovery including planning for recovery, demolition, repair, rebuilding, and financing recovery and rebuilding. Appendixes contain sample job specifications for an emergency preparedness coordinator, summaries of legislation and applicable authorities, Stanford University's disaster response plan, a checklist for campus residence hall evacuation, and an outline of the cost recovery process through state and federal assistance. (Contains 24 references.) (JB)

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EARTHQUAKE PREPAREDNESS 101:

PLANNING GUIDELINES FOR COLLEGES AND UNIVERSITIES

September, 1992

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Earthquake Preparedness 101:
Planning Guidelines

for
Colleges and Universities

Developed by the

Southern California Earthquake Preparedness Project

and

Bay Area Regional Earthquake Preparedness Project

Governor's Office of Emergency Services
State of California

September, 1992

The recommendations and suggestions in this document are intended to improve earthquake preparedness, response and recovery. The contents do not necessarily reflect the views and policies of the Federal Emergency Management Agency or the Governor's Office of Emergency Services and do not guarantee the safety of any individual, structure, or facility in an earthquake situation. Neither the United States nor the State of California assumes liability for any injury, death, or property damage that results from an earthquake.

Acknowledgments

This guideline was prepared for university and college emergency managers by university and college emergency managers, with the assistance of the Southern California, and Bay Area Regional Earthquake Preparedness Projects (SCEPP and BAREPP), both part of the Governor's Office of Emergency Services. We are indebted to numerous individuals and institutions for their contributions to the development of Earthquake Preparedness 101: Planning Guidelines for Colleges and Universities.

First, we must acknowledge the major contribution of the University Earthquake Planning Committee, assembled by the Southern California Earthquake Preparedness Project. The committee was co-chaired by Dr. William Regensburger, Director of Emergency Planning at the University of Southern California and James Goltz, Research and Evaluation Program Manager with SCEPP. Members of the committee provided drafts of each section in the guideline, reviewed and commented on these sections, and were an energetic and insightful source of ideas, information and illustrations, most of which found their way into this document. A complete roster of members appears on page ii.

Impetus for development of the guideline came from at least two sources. Improved earthquake preparedness by colleges and universities was identified as a priority by the California State Legislature in its Five Year Earthquake Hazard Reduction Program enacted in 1985. This program goal was to be facilitated by the development of an earthquake preparedness planning guidebook for post-secondary institutions.

The SCEPP Policy Advisory Board whose members had witnessed or recalled the damaging effects of several earthquakes in California on colleges and universities were consistent advocates for improved planning. Two events were of particular significance--the October 1, 1987 Whittier Narrows earthquake and its impact on the California State University, Los Angeles campus, and the disruptive effect of the October 17, 1989 Loma Prieta earthquake on Stanford University and the University of California, Santa Cruz.

Three OES Earthquake Program staff participated as members of the committee: James Goltz (who served as committee co-chair) and Deborah Steffen of SCEPP, and Sarah Nathe of BAREPP.

The University Earthquake Planning Committee began meeting in April, 1991, and continued to do so on a regular basis until January, 1992, when a final draft was completed.

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CALIFORNIA STATE UNIVERSITY, LOS ANGELES

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OFFICE OF THE PRESIDENT
(213) 343-3030

January 24, 1992

Dear Colleague:

Throughout history there have been times of tragedy and devastation which have severely tested the human spirit. At California State University, Los Angeles, we forged ahead in a collective spirit to restore confidence after a major earthquake struck the Los Angeles area on October 1, 1987.

After eight days of campus closure, students, faculty and staff returned to a campus in the process of restoration and experienced the resilience of an educational institution that has been described as possibly the public facility most severely damaged by the Whitter Narrows Earthquake and subsequent aftershocks.

Commenting on the importance of developing sound plans to deal with a natural disaster, Governor Deukmejian observed: "The fact is that Cal State L.A. did have a plan that they made operational and that is a good part of the reason why we have not had more difficulty at this location." Being properly prepared enabled Cal State L.A. immediately to activate its Emergency Operations Center and assign duties using our Multi-hazard Emergency Plan as a guide.

The Cal State L.A. plan was approved by the Chancellor's Office and the State Office of Emergency Services in February, 1987. We were planning our first full-scale simulated emergency evacuation, but the earthquake turned out to be our test run.

The response of our faculty, staff and students and the timely recovery of the University are seen as two very important elements during and after this natural disaster. I urge you to take time and review the attached document. After review, I am sure that the document will be of immense value as you and your associates plan to address unexpected and catastrophic emergency situations.

Sincerely,

James M. Rosser
President

JMR:lc

Attachment

UNIVERSITY OF CALIFORNIA, BERKELEY

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OFFICE OF THE CHANCELLOR

BERKELEY, CALIFORNIA 94720

March 20, 1992

Dear Colleague,

On October 20, 1991, the sunrise over the Berkeley-Oakland Hills brought a warm and lovely day to the Bay Area and the University of California at Berkeley. By sunset, though, the beauty of the day and peaceful appearance of the campus were lost in clouds of black smoke. Within hours, the Berkeley Campus community had witnessed a disastrous fire at its doorstep that came within feet of campus property, resulted in the evacuation of parts of the campus, and the loss of home, shelter and possessions of almost 600 students, faculty and staff.

Had the fire occurred in the same location 24 hours earlier, the chaos would have been compounded by 74,000 fans being evacuated from the campus football stadium.

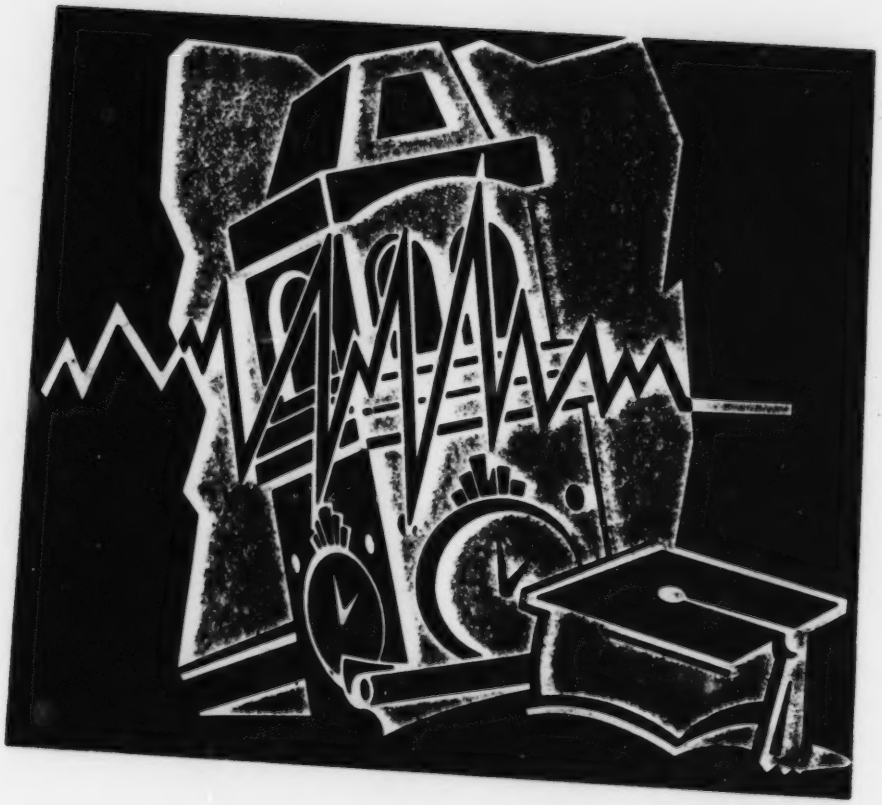
Between 1989's Loma Prieta Earthquake in the Bay Area and this fire, two years and three days had passed. After the earthquake, experts had persuaded us that it was not a question of "if" there would be a next event, but "when" there would be one. Fortunately, the University took the lesson seriously, and we began to prepare. We can be prepared to respond to the impact and consequences of disaster. Moreover, as this past October showed us, the time and effort put into disaster preparedness are well invested.

You and I are responsible for our students, faculty, staff and the mission of our institution. Consequently, I urge you to give *"Earthquake Preparedness 101: Guidelines for Colleges and Universities"* your heartfelt attention. Put it into the hands of the appropriate executive in your organization who has the lead for ensuring the safety and well-being of people, services, and the institutional life of the campus. It may be the most prudent business action we take this year.

Sincerely,

Chang-Lin Tien

Chang-Lin Tien
Chancellor



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1
To the President or Chancellor

"There were no deaths, nor any serious injuries. That result owes much to preparation. Stanford spent many millions of dollars over the past 15 years in strengthening seismically vulnerable buildings, bracing library stacks, reducing hazards in research laboratories, and going through annual disaster drills. There is no question that these precautions prevented loss of life." - Donald Kennedy, President, (during the 1989 earthquake) Stanford University

Major earthquakes are inevitable in California and other parts of the country. Colleges and universities are especially vulnerable to losses in earthquakes because of the multipurpose nature of campus facilities. An earthquake during weekday hours may kill or injure students, faculty and staff; an evening or weekend quake could harm the public attending a sporting or theater event, or a conference. Beyond the obvious concern about deaths and injuries, universities and colleges must be aware that a damaging earthquake can make their buildings and facilities unusable and, in effect, close down operations. Don't wait until circumstances take the upper hand and make your decisions all but impossible; now is the time to prepare for an earthquake. And the decision is yours alone.

Myths

There are two dangerous myths about earthquakes:

"It won't happen here," or "It won't happen for years."

In Northern and Southern California, scientists have determined that there is at least a 50% probability of a damaging earthquake on one of a number of faults in the next 20 to 30 years. Those are very high odds, and the earthquake could hit next week.

Lack of preparation could lead to loss of life and property; the potential liability is considerable. Scarcity of funding for disaster planning or hazard mitigation may not be an acceptable legal defense in a lawsuit filed by injured students or staff. Courts have also rejected the argument that earthquake damage is an unforeseeable "act of God." Institutions can be held responsible for damages and injuries incurred during earthquakes.

"There's nothing to be done about it."

There are many effective hazard reduction procedures that prudent colleges and universities can use to reduce their vulnerability. Disaster preparedness planning is as important in business operations as accounting and personnel management.

An earthquake plan is inexpensive earthquake insurance. It can also speed up recovery by increasing the ability to resume operations quickly. You can begin reducing your exposure to loss today.

Earthquake Preparedness is Required by California Law

Under law, California colleges and universities are legally responsible for having an "emergency action plan" and a "fire prevention plan." Each of the plans must include provisions for earthquakes (Title 8 of the ***California Code of Regulations***, Sections 3220 & 3221; Part 40 of the ***Education Code***, Chapter C4.1, Section 66210). (See APPENDIX 2.)

Some cities and counties in California have enacted ordinances requiring the strengthening of certain public and privately owned structures against earthquake shaking. The City of Los Angeles has had such an ordinance since 1981, but many other cities are adopting similar regulations for seismic evaluation and strengthening of buildings.

Earthquake Preparedness is Necessary and Feasible

A serious or even moderate earthquake in your area can interrupt normal university operations with transportation disruptions, utility outages, search and rescue operations, and personal emergencies for faculty, staff and students.

If a major earthquake strikes your campus, agencies that would normally respond to an emergency may be unable to do so because of other service requests. Conversely, your campus may be a local focus of attention, upon which rescue workers from other governmental agencies, volunteers, and neighbors converge. Planning for such eventualities will preserve the autonomy of your institution.

Your emergency response plan may prove to be your campus survival plan. Institutions that develop preparedness programs will benefit in many ways:

- Protection of lives and property
- Less disruption to classes and research
- Reduced liability
- Increased probability of disaster recovery aid

How to Make a Program Successful

Disaster preparedness programs may be organized in many ways. Regardless of the particular approach, however, solid support from top management is crucial. Commitment from high-level administrators makes more resources available, adds credibility to the planning and preparedness program, and contributes to coordination throughout the campus and across campuses.

By committing limited resources now, you increase the likelihood of saving substantial resources later. NOW is the time to:

- Designate a campus Disaster Planning Coordinator today. Just as there must be visible leadership during an emergency, there must be a visible leader in planning for emergencies. Although the Coordinator position can be filled competently by various kinds of people with assorted backgrounds and capabilities, it is most importantly an executive position. The position must have clout.

  The Coordinator could be an executive from physical plant, health and safety, or police/security, but she or he should be familiar with the academic environment and with emergency planning.

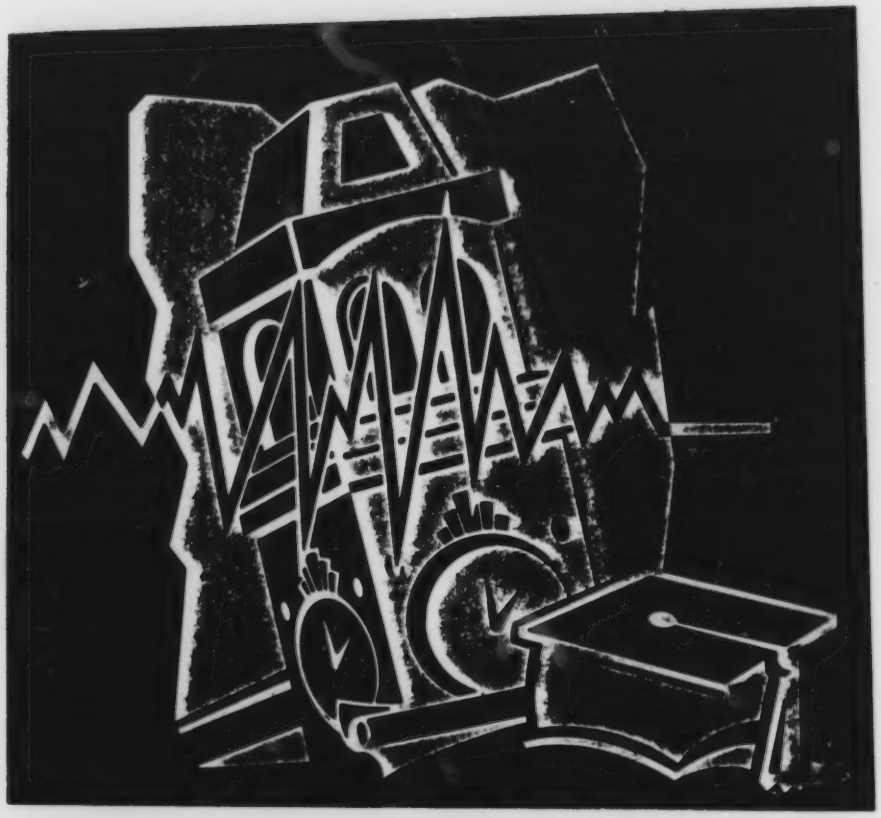
- Select and train a Disaster Management Team representing major campus units, including faculty and administration. Communicate the team's progress regularly to all campus departments and units.

- Incorporate earthquake planning and hazard mitigation in the annual budget process.
- Establish a campus policy to abate non-structural hazards.
- Involve in preparedness the many departments and units that will play a role in emergency response, damage assessment, medical and safety responsibilities, and facilities management.
- Collaborate with local, county, and state government agencies, as well as with such community groups as the Red Cross and neighborhood associations, at each stage in the planning process.

Where to Begin

Use this guide to develop your earthquake preparedness program. It is based on accepted principles of preparedness planning, but more importantly, it is a practical manual that reflects the experiences of California academic administrators and emergency managers with earthquakes and other disasters.

The suggestions in this guide can be adapted by public or private institutions of any size. This is not intended to serve as a sample plan to be copied; it is a compendium of issues and problems that may arise and that can be addressed through planning. An effective college or university disaster plan must be tailored to the circumstances and needs of the institution for which it is developed.



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2
To the Disaster Planner

"At Berkeley, we have decided to do as much as we can, now, with whatever resources or leverage we can lay claim to, to close our window of exposure. Little by little, over time, planning and coordination will get done and hazards will be reduced." - Nadesan Permaul, Emergency Preparedness Officer, University of California, Berkeley

"The academic setting is so diverse and decentralized that disaster planning, like other campus-wide administrative efforts, must reflect the suggestions of all constituencies. Broad participation creates a buy-in and uncovers hidden resources. Disaster response at UCLA is like disaster response in a community. All members of the community must know what to do for themselves and what to expect of others." - Roni Gordon, Disaster Preparedness Coordinator, UCLA

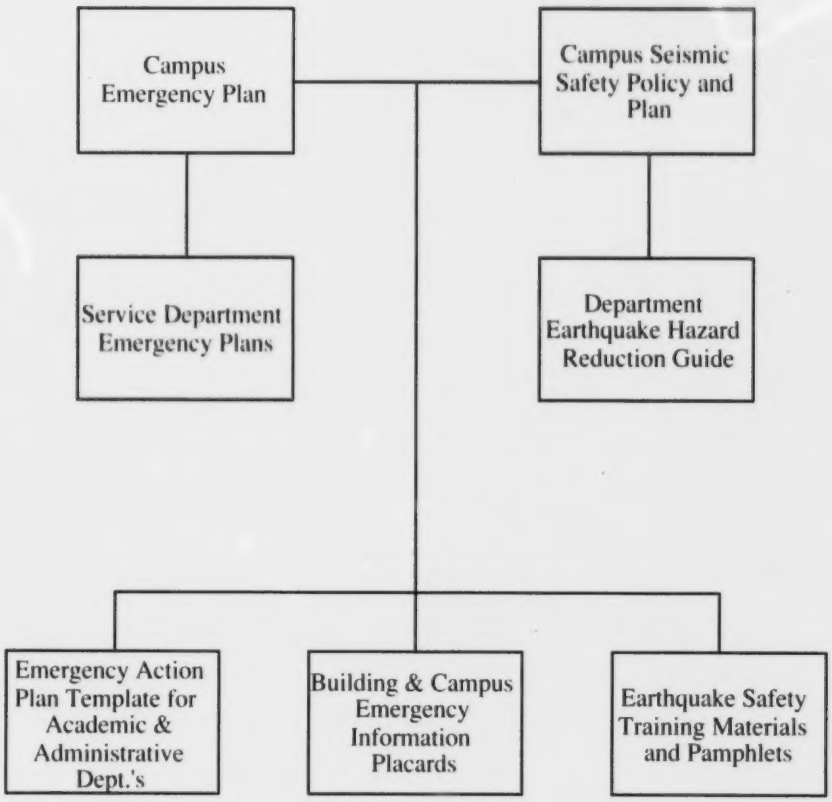
Colleges and universities are challenging organizations for emergency planners. Changing an unprepared campus into a well-prepared one takes energy and resources.

Fortunately, however, your institution also has abundant assets - from talented people and useful equipment, to circumstances that can be used to promote preparedness or response planning. Usually, at least a modest amount of money is available to support a cogent emergency preparedness program.

Fundamentally, the critical resource for disaster planning is the planner's ability to motivate the campus community to prepare. In other words, the planner must be a persuasive leader.

This chapter offers suggestions to the planner who is beginning the process. In this and succeeding chapters, refer to the **References** at the rear for citations of additional information on specific topics.

Products of an Effective Earthquake Planning Process



Planning Tips

Don't be daunted by the apparent difficulty of developing an earthquake preparedness program at your campus. Earthquake preparedness can be integrated into existing campus safety programs:

- Incorporate earthquake safety and response information into existing safety pamphlets and educational materials.
- Combine earthquake hazard reduction programs with plans to reduce fire, chemical and other types of hazards.
- Design ongoing training programs that integrate earthquake response procedures into other safety training programs.

Divide the planning into phases, recognizing that parts of some tasks may be best handled concurrently. This guide recommends three basic divisions of the process that define planning phases.

1. Earthquake Preparedness (**Chapter 3** of this report)

   Assessing hazards
   Developing hazard reduction plans
   Stocking and storing emergency supplies
   Educating the campus community in seismic safety

2. Emergency Response (**Chapter 4** of this report)

   Developing a campus-wide disaster response plan
   Establishing plans for departments and buildings
   Conducting emergency response training and drills
   Negotiating mutual aid agreements

3. Post-Disaster Recovery (**Chapter 5** of this report)

   Planning for repairs and reconstruction
   Developing strategies to resume operations
   Planning for financial recovery

Effective planning requires an understanding of the issues, and both executive and staff participation in the process.

The Disaster Management Team

The Disaster Planning Coordinator and members of the Disaster Management Team should be high-level administrators with the influence to make authoritative recommendations. They should decide who will direct and contribute to each phase of the plan. Some obvious participants are:

- Budget Officer
- Campus Administration
- Campus Police/Security
- Faculty Governing Body
- Fire Department/Fire Prevention Manager/Liaison to Local Fire Authority
- Food and Housing Personnel
- Health Care Providers (if your campus has a medical facility)
- Health and Safety Office
- Insurance and Risk Management Personnel
- Legal Counsel
- Personnel Office
- Public Information Officer
- Physical Plant Department
- Student Representatives

It may take deft maneuvering to secure the participation of some key players: you will need to convince directors and faculty of the value of the work, arrange for time allowances to be made, forge or rehabilitate intra-institutional relationships, and co-opt potential problem-causers.

Earthquake preparedness planning is politically complex. With top-level administrative support, successful emergency managers can bring heterogeneous people and groups together to accomplish a common goal.

It's also very important to secure faculty, staff and student participation. You will find many helpful volunteers among the general campus population.

To enhance the team approach, the Disaster Management Team may want to establish sub-committees and/or technical panels. However, create committees only when necessary; try

to prevent meetings from becoming more centrally important than the plan, policy development, and policy recommendations.

Set Goals

Small, incremental goals will help you maintain your momentum. Set them for each planning phase. You may want to begin with a modest project that can serve as a model. For example, you may want to choose one building and concentrate on mitigating non-structural hazards and preparing the faculty, staff, and students who use that building.

Publicize your accomplishments along the way; updates for the campus community may prove to be THE response plan if an earthquake does not wait for your plan to be completed. Develop an identity for your written communications, possibly through the use of a logo.

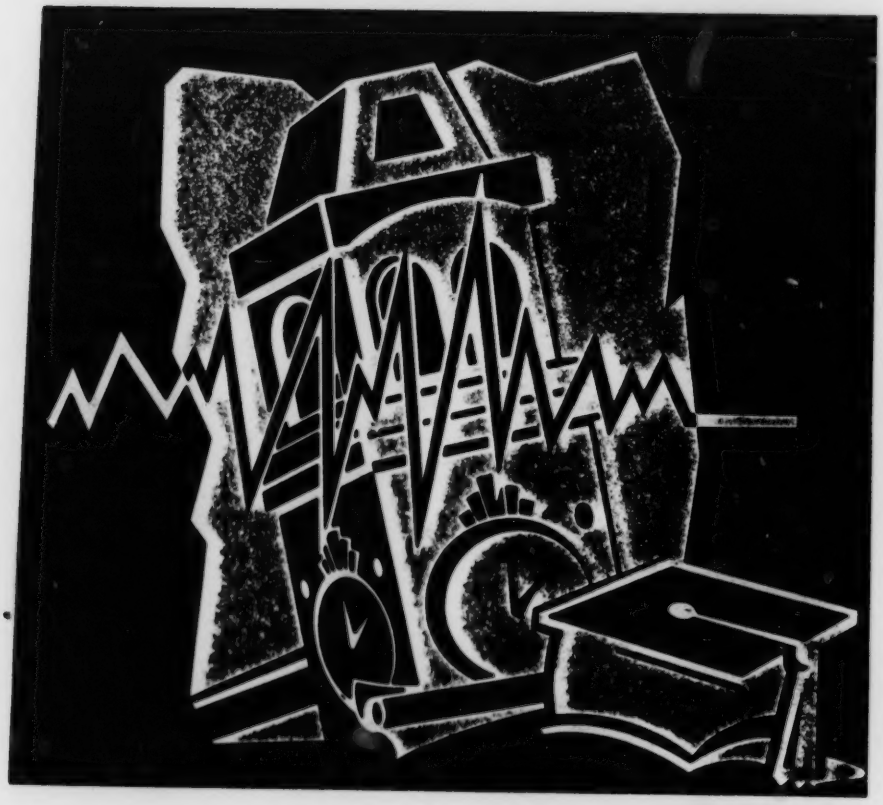
A Good Plan is Flexible

The most useful plans in any disaster are flexible ones that emphasize general strategies over particular tactics. Every disaster is different, and the conditions that prevail in each one will determine the best tactics to use. A good written plan is often short. Simple, easy-to-use checklists and graphic materials will make the plan understandable and increase its helpfulness.

No matter how well-developed your earthquake plan, establishing "command and control" of each situation will take time. Expect confusion after a disaster, but design your plan to minimize the initial period of disorder.

Update Plans Frequently

Never consider your earthquake plan complete. Before adopting the plan, arrange for campus review and comments. Once you have a plan, test it often--and change it as necessary.



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3
Earthquake Preparedness

Pictured above is the interior of Bovard Hall of Administration at the University of Southern California, before and after seismic retrofit. USC chose to preserve this historic campus landmark, reinforcing the structure against earthquake shaking, meeting modern building codes, and enhancing the interior appearance (photo provided by USC Publications).

This chapter provides information on four areas of earthquake preparedness that must be addressed by a college or university:

A. Assessing Earthquake Hazards
B. Reducing Earthquake Hazards
C. Educating the Campus in Earthquake Preparedness
D. Acquiring Emergency Supplies and Equipment

The Disaster Management Team should develop a long-term earthquake preparedness plan that identifies reasonable objectives and assigns tasks. Campus facilities personnel should be given assessment and hazard reduction programs, while campus police or safety staff should coordinate earthquake education and supply programs. Progress in each area should be monitored and reported regularly to the campus community. Although completion of all the steps identified in this chapter will take time, the earthquake vulnerability of the campus will be steadily reduced.

Assess Earthquake Hazards

The Disaster Planning Team's first task is to identify potential earthquake hazards on campus. Potential hazards include not only structures, but secondary hazards such as falling masonry, shattered windows, toppling equipment, gas leaks, ruptured water pipes, damaged roads, fires, and hazardous materials incidents. The team must assess the vulnerability of the campus to all such incidents.

Whenever possible, integrate seismic hazard surveys with ongoing hazards assessment programs, such as laboratory inspection and facilities maintenance programs.

1) Evaluate campus soils for earthquake shaking potential. Check with the county geologist or local planning department to identify nearby faults, areas of potential ground movement or landslides, and areas subject to liquefaction. Geology faculty members may also have information that will help anticipate what to plan for in a quake, and they may assist in providing direction for campus land use planning.

2) Identify buildings that are vulnerable to serious structural damage or collapse in a major earthquake. The most common potentially hazardous buildings are unreinforced masonry structures and concrete frame structures built without enough flexibility to withstand earthquake shaking. Buildings with soft stories or irregular shapes may also be unusually vulnerable. Buildings must be assessed by a structural engineer with expertise in seismic vulnerability. Buildings requiring more precise assessment can be equipped with seismic instruments by engineering faculty to identify the structure's response to various levels of potential ground shaking.

3) Survey campus utilities, including water lines, natural gas distribution systems, telecommunications lines, radio antennas and repeaters, electric power distribution system, and heating systems. These systems are lifelines for campus operations and a vital link to the outside world.

   Assessing hazards to these systems involves "what if" questions. Will emergency generators powered by natural gas function if gas lines are ruptured? Will hand-held radios operate if repeaters and antennas topple or have no backup emergency power?

   For all utility systems, find the vulnerable point at which damage will knock out an entire system. Are all antennas and repeaters fixed to a single location where damage will disrupt communications? Does the entire telecommunications system depend on one microwave dish inadequately attached to a structure? Do power, gas, or water distribution systems pass through a single bottleneck where damage could deprive the entire campus of service? Are there points where natural gas leaks could occur?

4) Identify non-structural building contents that pose safety hazards or may result in property loss. Potentially vulnerable items include:

- Office, classroom, and dormitory furnishings that could topple.
- Laboratory hazardous materials that could be released.
- Library stacks that are not adequately braced.
- Kitchen equipment that could overturn.
- Computer equipment that could be thrown to the floor.
- Friable asbestos that could be shaken loose.
- Valuable art collections that could be damaged.
- Generators and other large pieces of equipment that could be damaged.

Reduce Earthquake Hazards

Develop mitigation programs to reduce the hazards that the Disaster Management Team has identified. Many such programs are costly, but priorities must be set and acted upon. Earthquake hazard reduction programs save lives and reduce property losses.

Some hazard reduction programs will be coordinated by central administrators, while others are the responsibility of individual schools and departments. Give all campus units guidance on potential hazards and risk reduction techniques, and provide them with managerial or fiscal incentives to complete recommended measures.

1) **Geologic hazards reduction.** Make appropriate revisions to the general campus building plan if hazards such as potential liquefaction or slope failure are identified. Avoid building in high-hazard areas or build with appropriate mitigation measures, such as strengthened foundations or structural bracing.

Damage to a Stanford student's car from falling debris in the October 1989 Loma Prieta earthquake. (Photo provided by Stanford University).

2) **Structural hazards reduction**. Strengthening buildings against earthquake shaking can prevent catastrophic loss of life and severe financial loss. Strengthening techniques are well known to the engineering community, and vary according to the level of protection desired. The most complete protection is provided by base isolation, a technique which involves isolating the building from the ground. This technique is normally applied to new buildings as they are constructed, such as the University of Southern California Hospital, completed in 1991. The expense is generally about 5% of the construction cost. Base isolation can also be applied retroactively to an existing building in some cases, at much greater expense; it may be appropriate for a structure of critical importance to the institution.

Significant protection is also provided by more conventional strengthening of unreinforced masonry or poorly reinforced concrete frame buildings. Strengthening techniques generally involve adding steel reinforcements to floors, walls, and roof diaphragms to increase strength, tying structural elements more firmly together, or increasing flexibility.

The purpose of most seismic reinforcement projects is to prevent the collapse of the building in an earthquake, not to prevent major damage or ensure the facility's continued habitability. Any reinforcement program should ask, first, whether the building in question is worth saving; or would demolition be a more cost-effective solution? If the building is near the end of its useful life, and has little architectural or historic value, demolition may be a good option, particularly if new facilities are planned.

Once buildings are chosen for reinforcement, the Disaster Management Team, in cooperation with building professionals, must establish a schedule for strengthening, starting with buildings that pose the greatest life safety risk to the largest number of occupants. Once the worst life safety risks have been strengthened, other vulnerable buildings may be chosen because of their importance to the academic program or to critical emergency services. For example, strengthening the central library, a research building, or the campus police/security building may be a high priority.

Critical buildings with historical significance may be reinforced to a higher level. The University of Southern California building pictured on the first page of this chapter, Bovard Hall of Administration, houses critical administrative offices and is the central landmark of the campus. The building has been reinforced to a higher level than necessary, and simultaneously remodeled to enhance the interior, provided with handicapped access, and fitted with upgraded utility systems.

Structural hazard reduction programs are expensive, but the benefits are significant. Stanford University, the pioneering institution in California seismic safety, found in the 1989 Loma Prieta earthquake that all reinforced buildings performed well, saving lives and preventing immense financial loss.

3) **Protection of lifelines**. Campus lifelines should be strengthened against potential earthquake damage by reinforcing or bracing equipment, providing emergency power, reducing the vulnerability of key points in each system, and diversifying critical facilities. Create alternate paths for utility services to reduce bottlenecks. Install automatic seismic shutoff devices in systems subject to secondary hazards. For example, consider natural gas shutoff devices for large boilers vulnerable to explosion. Consider reducing the risk of electric power loss by establishing a power co-generation system for the campus or by installing emergency generators in critical facilities. Ensure that radio repeaters have backup power and that antennas are braced.

   Integrate these seismic projects into existing facilities upgrade projects to the extent possible. During routine replacement of pipelines and other equipment, there is an opportunity to reduce earthquake hazards cost-effectively.

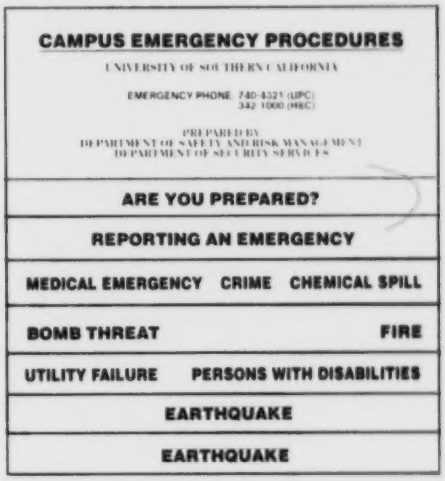
4) **Non-structural hazards reduction.** Furniture or equipment that may injure people or break should be rearranged, fastened down, or protected from earthquake shaking. For example, bolt cabinets or shelving over 48" tall to the wall; install seismic restraint lips on chemical shelving; replace large expanses of glass with tempered glass or cover them with safety film; secure heavy light fixtures with extra bracing; brace library stacks. For example, UCLA anchored over 56,000 pieces of furniture and equipment during 1987-1990. UCLA has a special unit in its Facilities Management Division to do this work for departments that move or rearrange their space, or acquire new equipment.

   Identify mitigation priorities for your campus and then ensure that they are properly engineered and executed. Improperly installed non-structural retrofits may be ineffective. The strategy you take to accomplish this may be a centralized one, in which the Facilities Department identifies and eliminates hazards, or a decentralized one, in which each campus unit performs the work.

Inadequately braced shelving that fell during the October, 1989 Loma Prieta earthquake. Shelves were re-erected and braced. (Photo provided by J. Hugh Jackson Library of Business, Stanford University).

Educate the Campus Community

The ability to respond to a major earthquake, and recover from it, rests partly on the earthquake awareness of staff, faculty, and students. However good the formal disaster plan may be, its success will depend on how well the campus community has been educated in earthquake survival and basic response procedures. A variety of methods can be used to increase earthquake safety awareness.


CAMPUS EMERGENCY PROCEDURES

UNIVERSITY OF SOUTHERN CALIFORNIA

EMERGENCY PHONE 740-4321 (UPC)
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PREPARED BY
DEPARTMENT OF SAFETY AND RISK MANAGEMENT
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UTILITY FAILURE PERSONS WITH DISABILITIES

EARTHQUAKE

EARTHQUAKE

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1) Develop a "Campus Emergency Procedures" pamphlet that describes appropriate response to a variety of emergency situations. Include checklists for earthquake, fire, medical emergency, hazardous materials incidents, bomb threats and other types of incidents. Emergency information such as evacuation routes and outdoor safe assembly points should also be printed on signs posted in campus buildings. Widespread distribution and posting of basic emergency information can educate the campus community.

2) Present earthquake safety programs to staff, faculty, or student groups. Recognize that many people typically avoid earthquake preparedness because they do not believe the hazard will affect them, or because they do not believe that preparedness actions will do any good. Effective preparedness education must therefore emphasize the certainty of the earthquake threat, but avoid exaggeration of it (no "scare tactics"). Presentations should have a positive tone, emphasizing the survivability of earthquakes if proper precautions are taken.

   Effective presentations often include these topics, adapted to offices, classrooms, or residence halls:

   - The seismic threat from potentially active earthquake faults in the area.
   - What to expect in a major earthquake.
     - √ Regional scenario
     - √ Campus hazards
     - √ Campus emergency plan
   - What to do in an earthquake.
     - √ During the shaking
     - √ After the shaking stops

- How to be better prepared
  - √ Actions to take on campus
  - √ Actions to take at home

3) Request that instructors read a brief earthquake safety information message in class at the beginning of each term.

4) Loan earthquake safety videotapes to staff, faculty, or student groups.

5) Place seismic safety information in campus publications.

6) Arrange earthquake safety exhibits in campus libraries or museums.

Fallen ceiling tiles in classroom at California State University, Los Angeles after the October, 1987 Whittier Narrows earthquake. (Photo provided by California State University, Los Angeles).

Acquire Emergency Equipment and Supplies

Emergency equipment and supplies will enable the campus community to survive and recover following a major earthquake. Certain types of equipment should be maintained centrally by the university or college, while others may be kept on hand by decentralized campus units. The type and amount of supplies will depend on the campus situation. A campus in an isolated area may need substantially more basic survival supplies than an institution in the heart of a major urban area.

Basic supplies and equipment are listed below:

1) Emergency communications equipment in a centralized campus emergency operations center. The emergency center should be equipped with telephones, backed up by redundant systems to ensure communications under severe conditions. Redundant communication channels can include UHF or VHF radio systems, cellular telephones, CB radios, or ham radios.

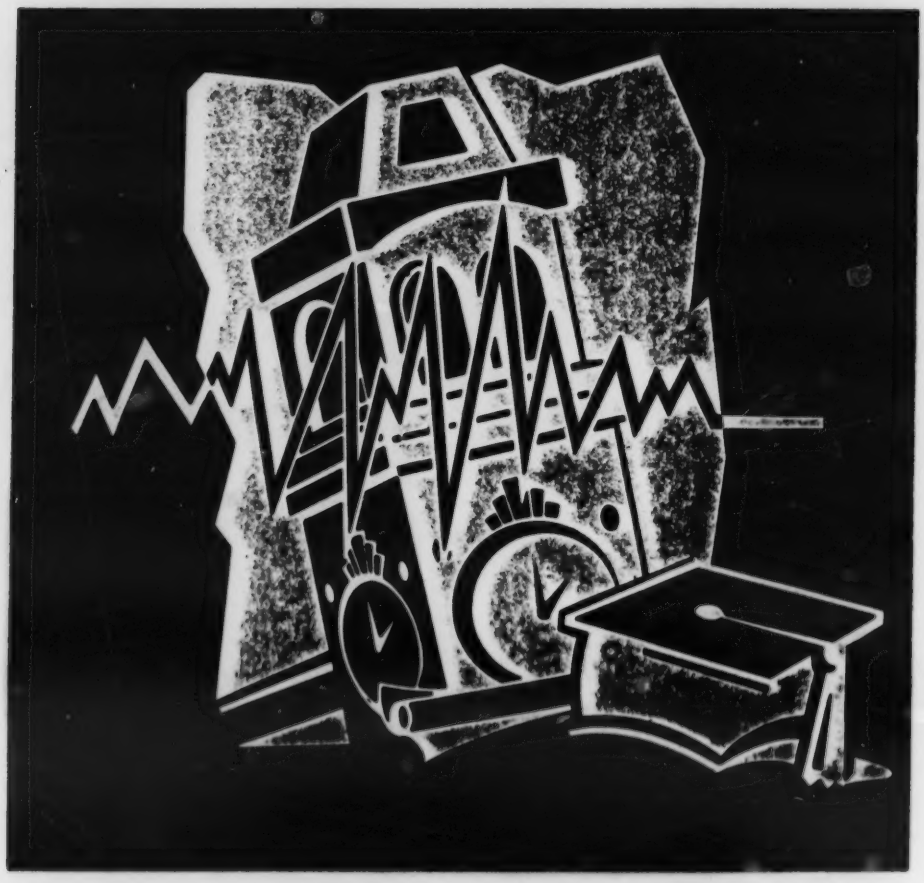
2) Tools and equipment to conduct emergency repairs or rescue activities, such as bracing timbers, hard hats, crowbars, gloves, hazardous materials cleanup materials, emergency lights, and self-contained breathing apparatus.

3) A reserve of water and food for emergency responders, resident students, and others on campus following the earthquake. Store these reserves in a cool, dry place. (For example, Stanford University has placed emergency supplies in a number of small underground silos located near residence halls.) Campus dining services units should also make pre-earthquake agreements with vendors to ensure continued service in an emergency.

4) Many small emergency kits, stored by individuals, with water, food, first aid materials, a battery-operated flashlight and radio. Many vendors market such kits, or the college may put packets together at lower cost. Each department should purchase a larger emergency kit for its central office.

5) Emergency medical supplies suitable for basic assistance to the injured, stored by campus medical care units. Note: Consider involving the Red Cross in providing disaster supplies by agreeing to allow a campus facility to function as a community shelter in the event of a major disaster.

Emergency supply silos installed near residence halls at Stanford University. Each silo contains food, basic medical supplies, and sanitation supplies. Installation in the ground provides a cool temperature that prolongs the life of the supplies. (Photo provided by Stanford University).



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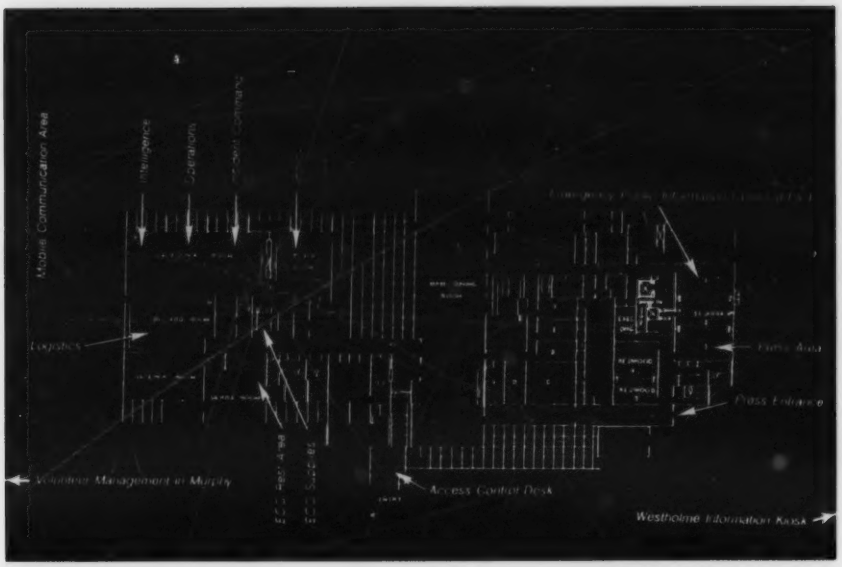
4
Earthquake Response



Layout of a campus Emergency Operations Center (Reprinted with permission of the University of California, Los Angeles).

Decisions made during the first hours and days after a major earthquake will affect the college or university's recovery for years, or even decades. It is critically important to have several types of emergency response plans.

- A campus-wide emergency plan and policies.
- Plans for units that will provide key emergency services.
- General emergency action plans for academic and administrative departments.
- Building-wide evacuation plans.

The Problems You Will Have

To build an effective emergency response capability, you must anticipate the problems caused by major earthquakes. Listed below are some problems your campus will face following a major earthquake, along with suggested solutions.

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1) **Lack of information about what has happened.** Establish an emergency communications and control center to gather information on injuries and damage. Report the campus' status to external agencies.

2) **Students, faculty, staff, or visitors with injuries. People trapped in hazardous areas.** Dispatch appropriate responders or teams of volunteers to locate casualties, provide first aid, and transport individuals to available medical care. Organize rescue teams and equipment. Provide post-disaster counseling to those with traumatic stress.

3) **Damaged or collapsed structures. Potential falling hazards.** Evacuate and close dangerous buildings. Assemble occupants at pre-designated evacuation points. Inspect buildings to determine whether they are safe to re-enter. Assess damage to equipment and furnishings.

4) **Fire and/or hazardous spills in labs and other areas.** Assign personnel to locate, assess, and control incidents.

5) **Damage to telephone, water, electrical power, gas, or other systems.** Assign inspection and repair teams. Provide emergency power and water to critical operations.

6) **Students, staff, and faculty demanding emergency information.** Information requests from anxious relatives. Influx of media. Assign staff to track campus population. Disseminate status reports and instructions to evacuees. Communicate with appropriate city/county agencies. Set up media center.

7) **Resident students displaced from damaged dorms.** Locate alternative shelter by doubling up in undamaged facilities, or arranging temporary shelter in non-residential buildings.

8) **Failure of nearby roads, rail systems, dams, nuclear power facilities, or refineries.** Coordinate with local authorities. Evacuate the campus using pre-identified routes.

The Incident Command System

How can your institution respond to so many problems in a coordinated way? Many educational institutions have adapted the "Incident Command System" (ICS) to lay out their basic emergency response. ICS is a widely accepted method for organizing emergency response activities that was developed by the Fire Service during the 1970s. The model is adaptable for an academic environment.

ICS provides a centralized management system for an emergency, and it divides response activities into functional groups to be handled by different individuals. ICS assumes that, in an emergency, time demands rarely allow for normal procedures; furthermore, administrators who are usually in charge may not be present. Nevertheless, an Emergency Center must be activated and someone present must act as INCIDENT COMMANDER, assessing and directing the situation. Other individuals must take roles within functional groups assigned to them by the Incident Commander, even if they do not normally report to that individual or perform the specified roles. The functional groups include:

- SITUATION ANALYSIS - collect and analyze damage and problem reports.
- OPERATIONS - develop response strategies and tactics.
- LOGISTICS - provide personnel and equipment to implement strategies.
- POLICY: develop operations policy and accurate information, serve as media liaison.

ICS can expand or contract to fit any campus environment. Also, the ICS principles of central coordination, cooperation, and delegated responsibilities will be useful in both minor emergencies and major disasters on campus.

This chapter covers a number of planning steps necessary to an effective response capability:

Developing emergency response priorities
Assigning emergency responsibilities
Developing an emergency management organization
Gathering supporting data for a campus plan
Making mutual aid agreements
Developing emergency plans for departments and buildings
Providing emergency response training

Developing Emergency Response Priorities

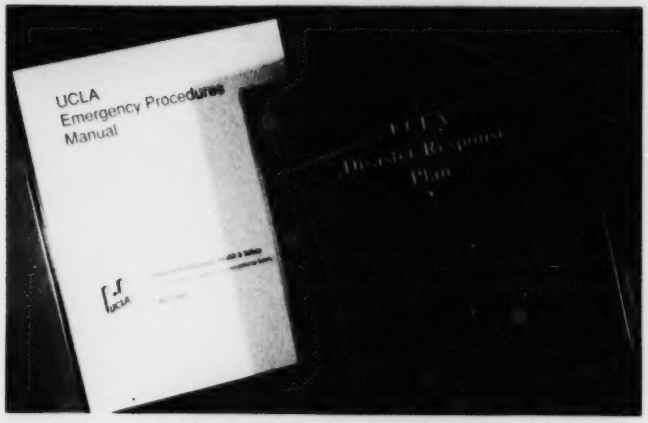
Establish priorities now that will help order response actions after an earthquake. For example, a reasonable set of priorities may be the following:

1) **Protection of Life Safety.** Assisting the injured, evacuating hazardous areas, eliminating life safety hazards.

2) **Preservation of Property and Resources.** Eliminating risks to facilities and systems that could lead to serious property loss beyond that already sustained.

3) **Restoration of Campus Academic Programs.** Restoring services, facilities, and programs to allow resumption of classes and research programs.

4) **Assisting Community Recovery.** Assisting the surrounding community in recovering from the disaster.



(Photo provided by the University of California, Los Angeles).

The campus emergency response will be calibrated to the nature and severity of the earthquake. Obviously, after a catastrophic quake, life safety will be the overwhelming priority for a significant time. However, in a moderate earthquake, protecting resources and resuming operations may be the most immediate issues. Even minor or moderate earthquakes will involve partial activation of the emergency plan, routine inspections, and reassurance to campus community members.

Emergency Response Assignments

For each response priority identified, key units should be assigned to carry out pre-assigned categories of post-quake actions. Departments that are designated to provide emergency services must develop their own plan, coordinated with the overall campus plan and integrated with other emergency service plans. While specific arrangements detailing which campus unit will perform which emergency services will naturally vary from institution to institution, all colleges and universities should consider the following array of basic emergency actions and possible assignments.

ACTION:	POSSIBLE ASSIGNMENT:
Plan Activation	Campus CEO, or designate
Operational Command	Executive Administration, Police/Security
Communications	Telecommunications, Police/Security
Structural Safety Inspection	Facilities, Campus Architect Volunteer Engineers
Evacuation	Police/Security, Volunteers Campus Fire Department
Search and Rescue	Police/Security, Facilities Campus Fire Department, Volunteers.
Medical/Psychological Care	Student Health, Campus Hospital, Counseling Center, Campus Police and Fire Departments.
Food and Shelter	Housing/Food Service
Personnel Tracking	Student Affairs, Personnel
Public Information	Public Relations, Executive Administration
Fire and Hazmat Control	Safety Office, Facilities, Campus Fire
Traffic Control	Parking Office
Law Enforcement	Police/Security
Supply and Procurement	Purchasing
Repairs & Shutoffs	Facilities

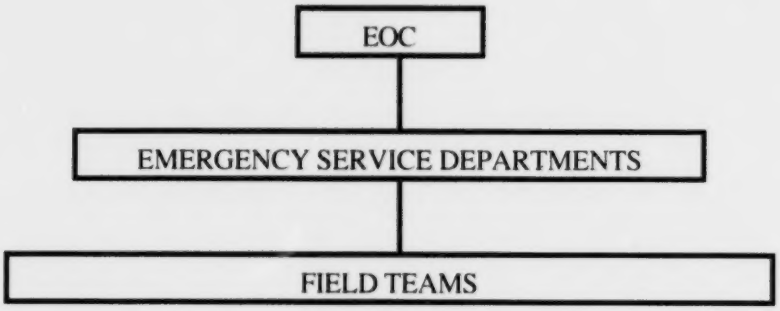
Emergency Management Organization

Urgent and simultaneous demands for emergency services after a major quake can quickly confuse and overwhelm decision makers. How can the emergency response be organized so that resources will be dispatched to problems promptly and coherently? One solution is to draft a system before the disaster for inter-department coordination. Many colleges and universities that have disaster plans use a hierarchical model for emergency management and communications that is based on establishing:

1) A central headquarters or "Emergency Operations Center" (EOC)
2) Command posts in offices of emergency service departments
3) Field teams consisting of staff and emergency volunteers

During the emergency response period, the hierarchy can be used to receive damage reports and distribute response instructions. Since the EOC is the pivotal point in the system, it is essential to locate this headquarters in a seismically sound structure and equip it with reliable communications. If the campus phone system has an emergency telephone protection/line load control system (usually called "Essential Line Service"), phones at the EOC and the Emergency Service command posts should have this extra security. Radio equipment should be available to allow basic communications if phones are out.

The model can be visualized as follows:



Field emergency response teams in key departments should be trained to report automatically to specific campus zones or facilities, and to assume command of incidents within their area of expertise.* They maintain communications with their department and coordinate response actions with other units through the EOC. Volunteers should be trained to assist in field operations.

* NOTE: Sometimes it is difficult to determine whether an earthquake has been severe enough to activate the entire plan--particularly if the quake strikes during off-hours and damage is light in individual neighborhoods. After a moderate quake, response personnel must use their judgment and report to campus if there is any doubt about the severity of the quake.

Supporting Data for the Campus Plan

After an earthquake, the EOC decision makers will need to assess the relative dangers of particular incidents and be aware of which resources can be brought to bear. Therefore, detailed data about the campus and its community must be instantly accessible. At a minimum, a practical campus emergency plan will include appendices with the following types of information:

- Description of supplies, equipment, and other resources available in a major emergency. The description should clearly identify access to emergency resources.
- List of emergency telephone numbers, including staff home numbers, cellular telephone numbers, and lists of external agency contacts (city, county, Red Cross).
- Maps of emergency zones, hazards, emergency routes, and utility systems.
- Specific data on campus facilities (occupancy, value).
- Contact list of trained volunteers.
- Emergency message forms, incident documentation forms, and other forms developed for the EOC.
- Data on community hazards and resources.

The California State University, Los Angeles Emergency Operations Center, activated following the 1987 Whittier Narrows earthquake. (Photo provided by California State University, Los Angeles).

Mutual Aid Agreements

In the aftermath of a major earthquake, little outside assistance may be immediately available for most colleges and universities. Mutual aid agreements and understandings with other organizations can be a major source of help.

Make agreements with other universities or colleges outside or inside your area. Shared resources may include hazardous materials responders, structural engineers, facilities specialists, medical and psychological specialists, or other skilled personnel. Such agreements can be made between campuses of a public system or between private schools.

It may be wise to have an agreement with the American Red Cross that allows the university to serve temporarily as a community shelter. While such agreements may obligate the college to share campus space with a shelter after a disaster, the assistance provided to the local community will help to strengthen community relations. The Red Cross has shelter agreements that can be completed and signed in advance of a disaster.

Other examples of useful mutual aid agreements are noted below:

- Agreements with nearby hotels and restaurants to assist with food and shelter.
- Agreements with vendors and contractors to make the school a high priority for continued service.
- Agreements with volunteer structural engineers to assist with building inspection.
- Agreements with amateur radio groups to assist with emergency communications.

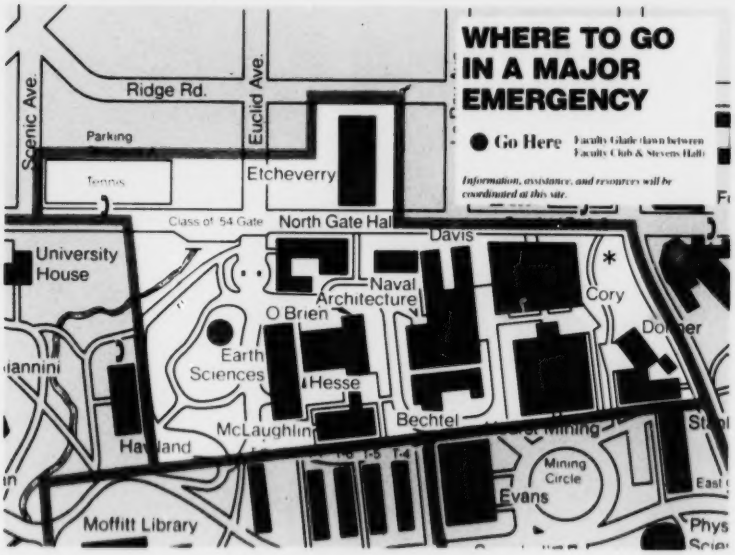
Mutual aid pacts should specify whether reimbursements are to be made for services or supplies. Such fees may be reimbursable under federal disaster assistance programs, if a written agreement exists.

Department and Building Emergency Plans

The majority of campus units will not have a specialized response role in the campus emergency plan, but they will have critical responsibilities for safeguarding students,

faculty, and staff before, during, and after an earthquake. For example, if an earthquake strikes when classes are in session, students will expect professors to know appropriate emergency procedures and provide leadership. All faculty and staff should be familiar with basic **building emergency plans** and with their **department emergency plan**.

Building emergency plans include evacuation routes and assembly points, simple protective actions, and notification procedures. The campus may already have many of the basic building plans in place. California colleges are legally required to develop an "emergency action plan" and a "fire prevention plan" for campus buildings. These include the following:



- Emergency escape procedures and routes.
- Procedures to be followed by employees who remain to operate critical plant operations.
- Procedures to account for all employees after evacuation.
- Rescue and medical duties for employees who are to perform them.
- Preferred means of reporting fires and other emergencies.

(Reprinted with permission of the University of California, Berkeley).

- Names or job titles of persons who can be contacted for further information on duties under the plan.
- Written guidance on potential fire hazards, proper handling and storage procedures, potential ignition sources, fire control procedures, and fire protection equipment or systems.
- Names or job titles of those responsible for maintenance of fire prevention/control systems and equipment.
- Names or regular job titles of those responsible for control of accumulation of flammable/combustible materials.
- Method to contact or notify employees about returning to work.

Department emergency plans provide for the program continuity of a specific department. Each department, administrative and academic, should specify how it will coordinate with the overall earthquake plan, including departmental priorities, chain-of-command, alternate operating locations, and special concerns.

Department emergency plans will vary; however, all plans should provide for emergency supplies, and identify critical functions and resources to be protected.

Department emergency plans should address any hazard that might affect operations. Laboratory research departments should develop emergency plans for hazardous materials, lab animals, and equipment failures. All computer-dependent departments must develop emergency procedures to protect vital records. Art departments and libraries should develop special procedures to protect valuable collections.

Every department should ensure that faculty and staff are aware of building emergency procedures at any location they use.

Building and department plans need not be included within the campus plan, although a suggested format for writing them could be included as an appendix. The success of local plans depends on there being trained individuals in each unit who are responsible for safety, emergency response, and risk management. Every department head should be aware that safety is a management function. Department heads are responsible for ensuring that all staff are familiar with emergency plans and procedures.

Emergency Response Training

Even the best emergency response plan will be ineffective if it is simply an attractive volume on campus bookshelves. In fact, having a generally unknown plan may be worse than having no plan at all because it will give a false sense of security. After making plans, see to it that ongoing education and training programs provide meaningful campus plans and preparedness.

Four types of training programs are needed:

- Specialized skills training for responders.
- Emergency volunteer training.
- Public education programs for the campus community.
- Emergency drills.

1) **Specialized training** for units with emergency service responsibilities includes:

   Orientation to roles outlined in the campus plan
   Evacuation procedures and search and rescue techniques
   Emergency communications resources/methods
   Disaster medical assistance and triage
   Incident management
   Personnel tracking
   Hazardous materials incident procedures
   Damage evaluation and repair
   Utilities inspection and service restoration
   Shelter management
   Post-earthquake psychological debriefing

2) **Volunteer training** for building and department safety coordinators, lab managers, and resident advisors should include the following general topics and skills:

   Orientation to roles outlined in the campus plan
   Incident management
   Evacuation techniques
   Fire suppression
   Light search and rescue
   Medical and psychological first aid

3) **Public preparedness and education programs** should be tailored to the needs of students, staff, or faculty audiences and should explain:

   Basic earthquake survival procedures
   Orientation to the campus plan
   Procedures for specific limited emergencies (see Education section in Chapter 3)

4) **Exercise emergency plans** regularly in order to keep them fresh and meaningful. While it is true that simple evacuation drills and even actual minor emergencies provide some test of department and building emergency procedures, a full-scale earthquake exercise will produce a comprehensive test of inter-departmental coordination.

When you plan a major earthquake exercise, consider the following steps:

1) Bring representatives of key departments together in the Emergency Operations Center.

2) Provide a meaningful scenario.

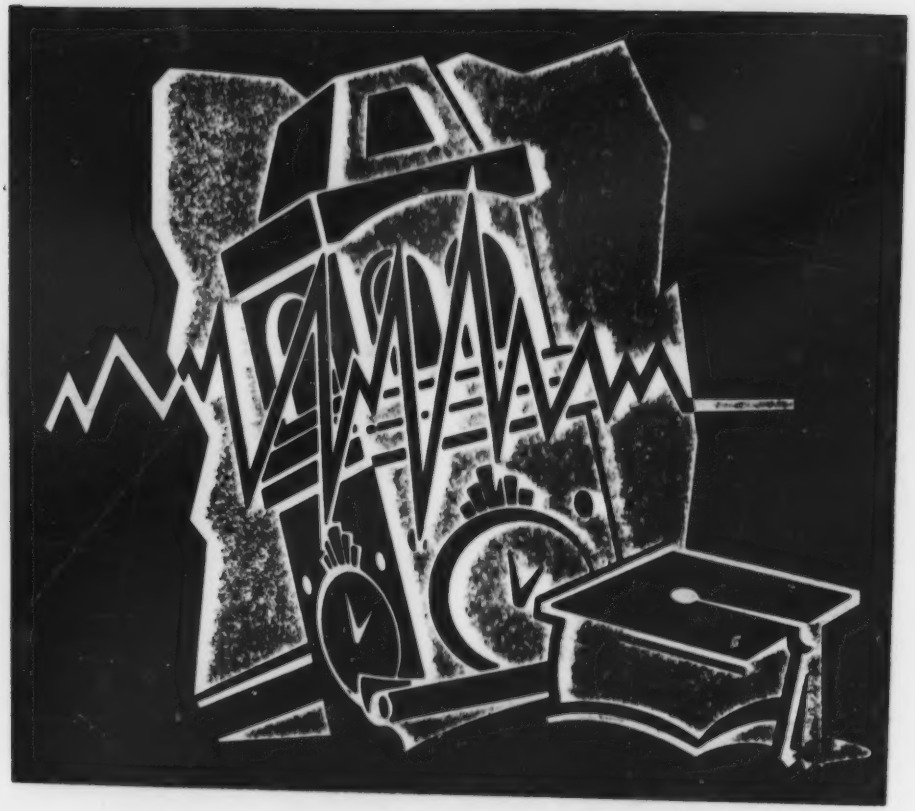
3) Test the group's response to the scenario by asking them to identify priorities and actions. A more elaborate exercise may involve actually mobilizing field staff to carry out simulated actions.

4) Ask the group to evaluate the response, identifying needed revisions to plans and ways to better coordinate actions.

5) Identify lessons learned in the exercise, including both gaps to be closed and things that went well. Follow up with needed plan revisions or training.

Finally, it is important to reiterate that your plan should not only relate to severe, moderate and minor earthquakes, but it also should include procedures for predicted seismic activity. In California, the state Office of Emergency Services has worked with earth scientists to establish a system of earthquake "advisories." Advisories are not predictions, but general statements indicating that earthquake activity could occur in the following 3-5 days. Currently, the level of precision and reliability of advisories is very low. However, future advisories may be more precise, and may be issued in areas outside California. It may be worthwhile to develop some ideas for general preparatory actions that could be taken on campus if advisories are issued. Particular attention should be paid to developing limited responses to short-term "imminent earthquake" warnings.

Disaster evacuation drill at Stanford University. (Photo provided by Stanford University).



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5
Post-Disaster Recovery

Bracing to support damaged library at California State University, Los Angeles' library after the Whittier Narrows earthquake, October, 1987. (Photo provided by California State University, Los Angeles).

"While the typical major university has hundreds of structures containing millions of dollars worth of equipment and supplies, campus administrators tend to focus almost exclusively on disaster preparedness and response. Financial recovery and continuity of academic business operations typically receives little, if any, attention. From the outset, emergency planning task forces should include units involved in recovery - such as finance, procurement, contracts and grants." Thea K. O'Connell, Office of Emergency Management, University of California, Irvine.

After the emergency response is over, the most complicated work begins. Recovery and reconstruction are terms which describe a disaster-stricken community's return to normal functioning, and restoration of the built environment. Ideally, the built environment will be made more earthquake-safe.

A college or university must rapidly resume normal or quasi-normal activities. Two weeks or less is all that is available before academic and research programs are seriously disrupted. The recovery process must begin when the shaking stops; a well-considered recovery plan can reduce disruption and speed up program resumption.

The Importance of Recovery Planning

Most organizations have not planned for earthquake recovery and reconstruction. In a recent survey of business and corporate disaster officials, the highest post-disaster priority was said to be business resumption, yet only 1% of those interviewed reported any pre-disaster planning for post-disaster recovery. This is probably the case in other institutional settings as well.

Failure to plan ensures that major policy decisions will be made on an ad-hoc basis during the stressful emergency response period under conditions most likely to lead to errors, missed opportunities and lengthy delays. This is a costly mistake.

Consequences of not planning ahead:

- The college or university may not qualify for federal disaster assistance funding for which it is eligible.
- Attention will be given to the most visible issues rather than those of greater long-term importance.
- Without adequate planning, reconstruction may simply reproduce the same seismic safety hazards that existed prior to the earthquake.
- The emergency response organization will be stressed unnecessarily if it is expected to handle both response AND recovery.
- Opportunities to use the reconstruction period to achieve planning goals could be lost.

Rewards of planning ahead:

- Speed up resumption of college or university operations.
- Provide opportunities to improve the seismic safety of the campus or entire system.
- Include seismic safety considerations in general land-use planning.

Recovery Planning Tips

Establish a recovery and reconstruction subcommittee of the Disaster Management Team. It should include representatives from the faculty, purchasing, accounting, physical plant, risk management, planning, administration, the legal office and the emergency coordinator.

The subcommittee should draft policy statements for consideration which affirm the importance of recovery and reconstruction planning as part of a comprehensive earthquake preparedness and response program.

The subcommittee should consider issues relating to repair and rebuilding, financial and program recovery and propose policies for review by campus management and develop plans which address these issues.

Three interrelated elements of recovery demand attention simultaneously during the recovery period: 1) demolition, repair, and rebuilding each require difficult and potentially divisive decision making; 2) a severely damaged campus will, in all likelihood, require money not provided for in operating budgets, reserves and insurance coverages; and 3) an earthquake-stricken college or university must reestablish its program quickly - resume classes, research activities, and campus business - despite the dislocation caused by the earthquake.

Demolition, Repair, and Rebuilding

As the emergency response phase of the disaster wanes, college or university officials may face a campus with severely damaged buildings, bridges, parking structures and other facilities. Debris from the earthquake may impair access to buildings or parts of the campus.

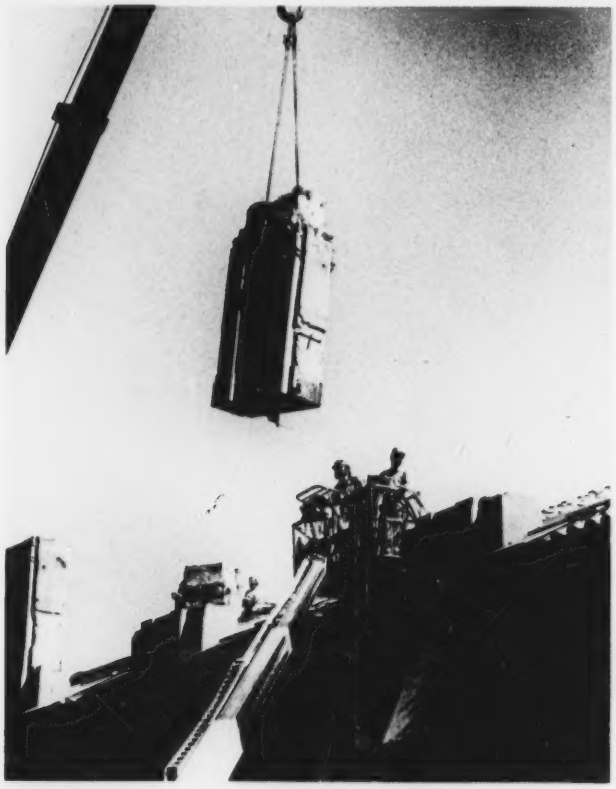
Planning for recovery must address several issues:

1) Pre-disaster arrangements for contractor support will expedite clean-up, debris removal, and decontamination during the recovery period. Planners should also identify temporary debris collection sites on campus.

2) Determine which alternate sites can be used if university activities are displaced by damage to buildings and need to be relocated.

3) Very badly damaged buildings and other campus structures will raise at least two difficult questions - demolition versus repair, and repair to what standard of seismic safety.

4) Damaged buildings of cultural or historic significance will require special attention. Make policies for post-disaster treatment of various classes of campus buildings, and set standards for their rehabilitation and restoration.



Crane lifting chimney as part of post-earthquake repair program at Stanford University following the 1989 Loma Prieta earthquake. (Photo provided by Stanford University).

Financing Recovery and Reconstruction

Earthquake recovery and reconstruction are expensive. Where the money comes from, what qualifications are placed on its use, who gets it, what it is used for, and when it is spent are burning issues in earthquake recovery and reconstruction.

There are several sources of recovery and reconstruction funds:

- √ Savings and reserves
- √ Insurance payments
- √ Budget reallocations

- √ Loans
- √ Fee increases
- √ Federal disaster assistance
- √ State disaster assistance
- √ Tax reductions
- √ Redevelopment and other incentives
- √ Contributions of funds or donations of equipment
- √ Other sources (e.g., special legislation, transfer payments)

Implied in this list are three possible strategies for recovery and reconstruction finance: liquidating current assets, borrowing against the future, and receiving compensation or aid.

The recovery and reconstruction subcommittee should consider the following steps in planning for earthquake recovery and reconstruction finance:

1) Assign a management-level budget officer to become familiar with provisions of the federal and state statutes relating to recovery and reconstruction funding. The federal authority is the Stafford Disaster Relief and Emergency Assistance Act. The state authority in California comes from the Natural Disaster Assistance Act and the Emergency Services Act (see APPENDIX 5 for a description of the disaster assistance process).

2) Based on this review of program requirements and application procedures, assemble a plan that includes

   - A database with the approximate replacement costs of structures, supplies and equipment and a mathematical function to account for inflation and depreciation.

   - A central damage documentation system that includes photographs, videotape and written documentation. Notation should include dates and times of all information recorded, actions taken and by whom.

   - Records of all disaster-related expenses - extra equipment and personnel, costs of temporary relocation, overtime, supplies and other resources to be used.

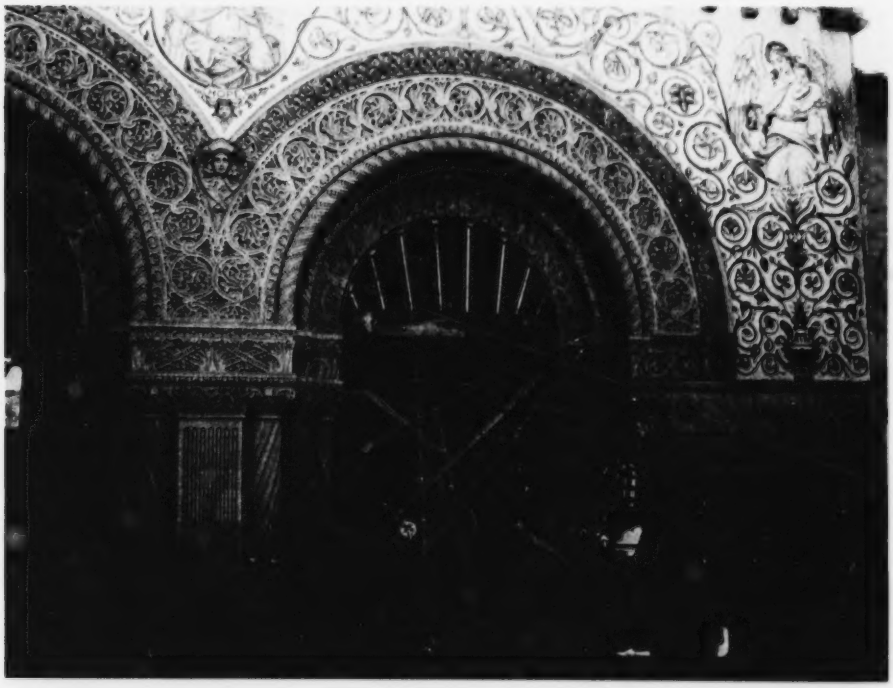
   - Special accounting codes that match the disaster assistance eligibility criteria of state and federal agencies.

   - An "earthquake hazard mitigation history." The state has a grant program to address potential differences between simple repair and mitigation upgrading. Proposals for these grants must be accompanied by a history of the university's actions to reduce earthquake hazards.

3) Appoint a staff person as liaison with local and state emergency management agencies before a disaster, and with the same agencies and state and federal disaster assistance officials after the disaster. This person might represent the university at the local emergency operations center immediately after the disaster, then attend the public officials briefing and assist with Disaster Survey Reporting during the recovery period (see APPENDIX 5).

Colleges and universities should also look into other strategies for financial recovery. The subcommittee should review insurance coverage for earthquakes or the adequacy of programs of self-insurance for disasters. They should also examine other alternatives for recovery and reconstruction finance using non-state and federal assistance (e.g., use of reserves, budget reallocations, bank loans, and other sources).

Finally, the recovery and reconstruction subcommittee should request that the legal officer prepare a summary of potential areas in which the college or university could be considered liable in an earthquake disaster. The subcommittee should work with the campus purchasing officer to develop an emergency supply/vendor roster and memoranda of understanding with specific firms to provide recovery period services, supplies and equipment.



Damaged and braced building at Stanford University following the 1989 Loma Prieta earthquake. (Photo provided by Stanford University).

Program Recovery

A major earthquake will disrupt college and university programs by damaging facilities and eliminating a significant portion of operating space. Even pre-earthquake hazard mitigation, concerned mainly on life-safety, will not prevent disruption of academic and research programs. Furthermore, if the disaster temporarily stops operations or forces evacuation of dormitories, it will be difficult to reach the dispersed campus population with information on resumption of classes and activities.

Therefore, the recovery and reconstruction subcommittee must address a number of program recovery issues and develop appropriate planning elements:

1) Select alternate procedures for supply, banking, payroll and data processing services. Include methods for off-site, possibly out-of-state, vital record storage.

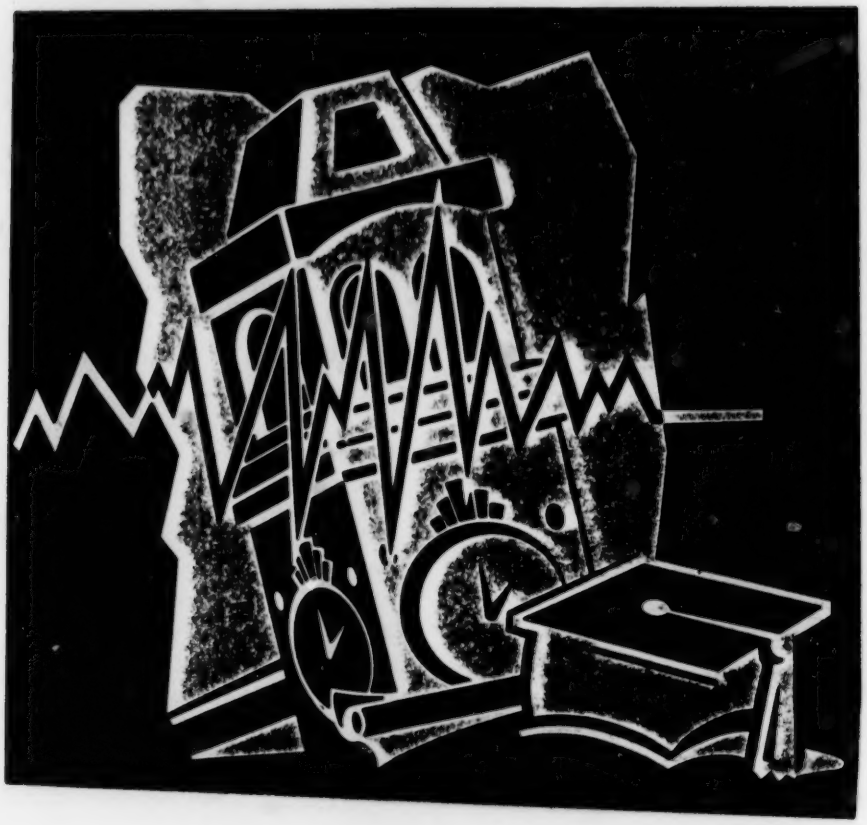
2) Select alternate sites for administrative operations, academic instruction and student housing.

3) Direct all department heads to make contingency plans for their operations:

   - They must identify functions, documents, and data records critical to recovery, and formulate action plans for their protection. They must coordinate results into a campus-wide priority system.
   - They must also develop plans to restore critical research programs and the facilities which support them.

4) Academic departments must determine the time period within which their program must resume to avoid serious disruption. They should also develop policies on grading, make-up exams, graduation, tuition refunds, payroll and other functions should the academic program be disrupted for an extended period of time.

5) Make communication with the campus population and public information a high priority. Information must explain the current status of campus operations including all significant dates for resumption of specific activities (e.g., classes, services, housing).



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Note:

The materials listed in this section that are publications of the Governor's Office of Emergency Services can be obtained by writing or calling the **Southern California Earthquake Preparedness Project**; 1110 E. Green Street, Suite 300, Pasadena, CA 91106, (818) 795-9055; or the **Bay Area Regional Earthquake Preparedness Project**, Metro Center, 101 Eighth Street, Suite 152, Oakland, CA 94607, (510) 540-2713.

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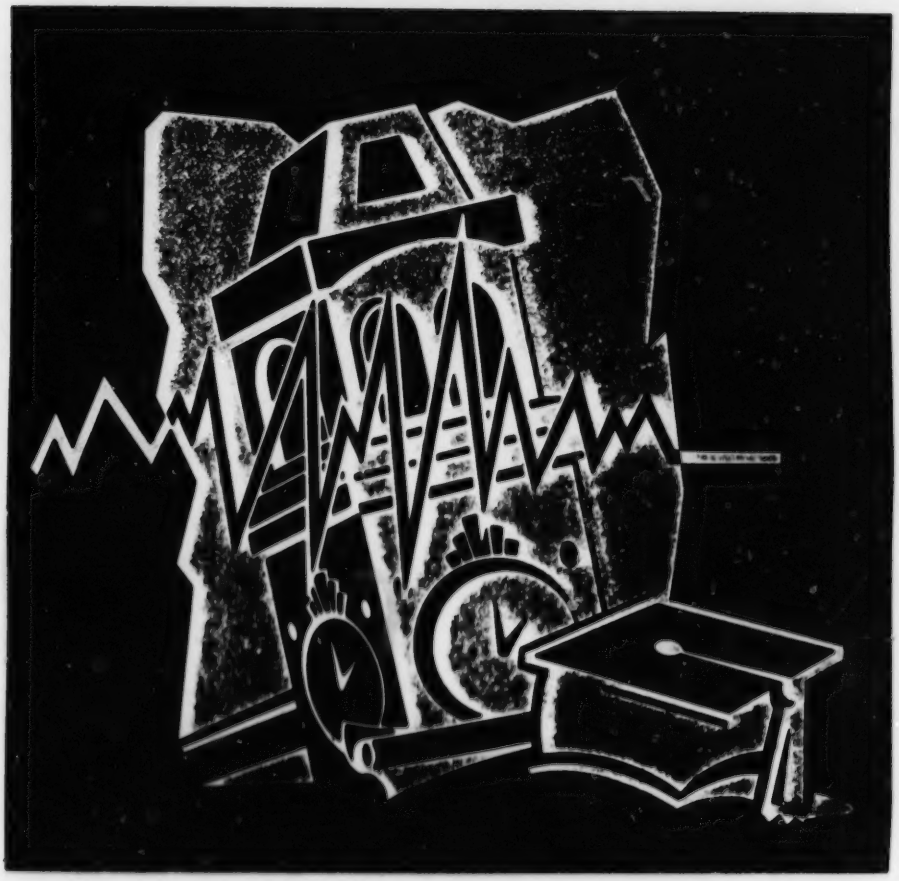

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Appendix 1
Sample Job Specifications for Campus Emergency Preparedness Coordinator

JOB DESCRIPTION

Under general supervision, assists in the development of a campus-wide disaster plan for effective emergency preparedness, response, and recovery. Aids in the development of campus emergency awareness by providing training for all campus personnel, with special emphasis on emergencies related to earthquakes, fires, and mass casualty incidents. Assesses the programs on an on-going basis to insure coordination of response and support groups, and to minimize the impact of emergencies on life and property. Coordinates emergency planning with such outside agencies as the Federal Emergency Management Agency (FEMA), the California Office of Emergency Services (OES), and local emergency response organizations such as the American Red Cross, the County Fire Department, and the County Sheriff's Office.

DUTIES AND TASKS

A. Planning (40%)

Assesses the potential susceptibility of the campus to natural and technological disasters, including earthquakes, fires, floods, hazardous spills, bomb threats, and civil disorders. Monitors changing circumstances to identify new or abated hazardous conditions, and provides updated campus hazard evaluations. Develops and maintains the Campus Emergency Operations Plan (EOP). Updates the EOP on a quarterly basis. Coordinates changes to the EOP with all affected departments and outside agencies. Integrates the departmental response to emergencies into the campus plan. Assists campus departments in the development of their Emergency Action/Fire Prevention Plans.

B. Training (40%)

Provides executive level training programs to members of the Emergency Operations Plan staff. Convenes meetings of the Emergency Operations Plan staff on a quarterly basis. Designs and conducts training exercises/drills in order to test the effectiveness of the

campus Emergency Operations Plan. These exercises will, at times, include coordination with outside agencies. Assists in the training of department staff in emergency response procedures. Recruits, trains, and manages a permanent organization of volunteers to assist during a campus emergency. Presents formal emergency preparedness seminars to staff, faculty, students, university residential populations, and the external community. Develops emergency preparedness educational materials (brochures, flyers, articles) for dissemination to the campus community.

C. Administration and Coordination (20%)

Coordinates the elements of the Campus Emergency Operations Plan with campus administrators, planning committees, and other organizations. Serves as liaison to local community and government agencies concerning issues related to emergency planning. Assists in the development and maintenance of the campus Emergency Operations Center. Identifies, procures, maintains, and utilizes physical resources (equipment and supplies) related to the implementation of the Emergency Operations Plan.

D. Disaster Response (as required)

Responds to the campus in a timely fashion in the event of an emergency or disaster. Activates the Emergency Operations Center and initiates the implementation of the Emergency Operations Plan.

REQUIRED SKILLS, KNOWLEDGE AND ABILITIES

Bachelor's degree and a minimum of two years experience in Emergency Planning. Technical expertise in appropriate scientific fields to provide systematic evaluation of campus hazards. Ability to identify specific geologic/geographic, demographic, and other multi-disciplinary factors related to emergency management. Ability to analyze descriptive and statistical data related to the complex of potential hazards found in the classroom, laboratory, or residential environments. Demonstrated proficiency in physical and human resource planning, with specific expertise in emergency planning and the Incident Command System. Understanding of computer methods that support planning activities.

Leadership and decision-making skills in order to set priorities before, during, and after an emergency. Ability to work under pressure - exercising good judgment independently and as part of a team. Ability to adapt to changing conditions. Excellent ability to communicate effectively through oral presentations and written reports. Ability to interact effectively and diplomatically with a variety of constituencies (executive, administrative, faculty, and student). Ability to represent the university to external professional and lay audiences in an articulate manner. Administrative ability to identify, procure, manage, and utilize a range of physical resources (equipment and supplies) related to the implementation of the

Emergency Operations Plan. Willingness to be on-call on a 24-hour basis for campus emergencies.

Appendix 2
Summaries of Legislation and Applicable Authorities (California)

CALIFORNIA CODE OF REGULATIONS (TITLE 8, SECTIONS 3220 AND 3221)

Section 3220: Emergency Action Plan. Applies to California public and private colleges and universities and requires a written emergency action plan which covers "those designated actions employers and employees must take to ensure employee safety from fire and other emergencies." The statute identifies several elements that all plans must contain:

- Emergency escape procedures and emergency escape route assignments.
- Safety procedures for employees who remain to perform critical functions before they evacuate.
- Procedures to account for all employees after evacuation.
- Rescue and medical duties for selected employees.
- A preferred means for reporting fires and other emergencies.
- Names and job titles of employees who can be contacted information about the plan.

According to the statute, the Emergency Action Plan must also contain an alarm system which notifies employees of an emergency, evacuation plans, and training including specification as to the circumstances under which training must be conducted.

Section 3221: Fire Prevention Plan. As employers, colleges and universities must have a written Fire Protection Plan, like the Emergency Action Plan, that contains the following elements:

- Potential fire hazards and their proper handling and storage procedures.
- Job titles of those responsible for fire protection equipment maintenance.
- Job titles of those responsible for flammable/combustible materials control.

The Fire Prevention Plan must also include written procedures for control of flammable and combustible materials, training and equipment maintenance.

EDUCATION CODE (PART 40, SECTION 66210 AND 66211)

Section 66210. This statute requires the Office of Emergency Services to develop guidelines (a checklist is included in this guide as Appendix D) for campuses of the University of California, California State University, and private colleges and universities to use in developing emergency evacuation plans for post-secondary student housing. Emergency evacuation plans are to be developed for all forms of student housing owned, operated and offered by universities and colleges both on, and off, campuses.

Section 66211. The chapter does not impose any requirement on the University of California unless the Regents adopt a resolution to that effect.

CALIFORNIA CODE OF REGULATIONS (TITLE 19, SECTIONS 3.09 AND 3.13)

Section 3.09 Emergency Planning Information. Requires owners and operators of office buildings 2 or more stories in height (except high rise buildings) to provide emergency procedures and information to building occupants in one of the following forms:

- Leaflet, brochure or pamphlet available to all persons entering the building.
- A floor plan posted at every stairway landing, elevator landing and entrance.

The emergency procedures must include information for all ambulatory, nonambulatory and physically disabled persons.

This section also requires facility emergency plans, fire emergency training and evacuation drills.

Section 3.13 Fire Drills. Requires secondary and post-secondary educational institutions to conduct fire drills at regular intervals.

Appendix 3
Disaster Response Plan, Stanford University

(Reproduced for this publication with permission of Stanford University)

STANFORD UNIVERSITY
Emergency Operations Plan

Last Revision: September 1990
Stanford University Department of Public Safety

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INTRODUCTION

The Emergency Operations Plan is a basic guide for providing a response system, by Stanford faculty, staff and students, to major disasters occurring on Stanford property. All personnel designated to carry out specific responsibilities are expected to know and understand the policies and procedures outlined. The emergency response to any major disaster will be conducted within the framework of this plan. Exceptions or changes to the outlined procedures must be approved by the Emergency Operations Director before implementation.

PURPOSE

The Emergency Operations Plan is designed to effectively coordinate the use of University and community resources to protect life and property immediately following a major natural or accidental disaster on the Stanford University campus. It is placed into operation whenever an emergency affecting the campus cannot be controlled through normal channels. The primary emergencies envisioned by this plan are a major earthquake or aircraft crash.

ORGANIZATION

The Emergency Operations Organization is made up of two groups:

1. The Emergency Operations Group reports to the Emergency Operations Director.
2. The Emergency Policy Group reports to the President.

Each Stanford University Department/Office listed in either of the Groups will designate a primary representative and at least two alternates.

RESPONSIBILITY AND CONTROL

The Emergency Operations Plan is under the executive control of the President of the University and under the operational direction of the highest ranking member of the Stanford University Department of Public Safety on campus (henceforth to be designated the Emergency Operations Director). When an emergency situation arises, the Emergency Operations Director will activate the Emergency Operations Plan. S/he will retain control of the Emergency Operations Group until relieved by a higher ranking member of the Department of Public Safety. University personnel and equipment will be utilized to provide priority protection for:

1. Life safety
2. Preservation of property
3. Restoration of the academic program.

The manner in which University personnel and equipment will be utilized will be determined by the Emergency Operations Group Representatives under the direction of the Emergency Operations Director. The President or Acting President of the University will be responsible for notifying the Emergency Operations Director to deactivate the Emergency Operations Plan when s/he deems it appropriate.

IMPLEMENTATION

In the event of a major disaster, the Emergency Operations Plan will be implemented in the following ways:

I. If Telephone Services ARE Operational
   a. The Emergency Operations Director will activate the Emergency Operations Plan. S/he will designate the Emergency Operations Center and Emergency Policy Center locations and appoint an Emergency Operations Center Communicator.
   b. The Emergency Operations Center Communicator or designee will immediately begin calling the members of the Emergency Operations Group, and advising them to come to the designated Emergency Operations Center.
   c. The Emergency Operations Center Communicator or designee will periodically advise the Emergency Operations Director of the availability and estimated time of arrival of the Emergency Operations Group Representatives.
   d. After notifying the Emergency Operations Group, the Emergency Operations Center Communicator or designee will call the members of the Emergency Policy Group and advise them to come to the designated Emergency Policy Command Center.

II. If Telephone Services ARE NOT Functional
   a. The designated members of the Emergency Operations Group and the Emergency Policy Group will immediately travel to 711 Serra Street to implement the Emergency Operations Plan as soon as they are aware that a major disaster affecting the Stanford campus may have occurred.
   b. If the designated members of the Emergency Operations Group do not respond to the Emergency Operations Center in a reasonable amount of time, messengers may be dispatched.

III. Appointment of Emergency Operations Group Representatives
   a. The Emergency Operations Director will immediately appoint available individuals, with appropriate skills, to fill each of the Emergency Operations Group positions. These appointments will remain in effect until a more senior/experienced person is located and available. The acting representative will then become assistant to the senior person.

NONWORKING HOURS

There is approximately a 75% chance that a disaster such as the one envisioned by this plan may occur before or after regular university office hours, or on a holiday or weekend when the organizational set-up of many departments is somehow out of the ordinary. While the structure of this plan remains precisely the same, its implementation may vary necessarily depending on, e.g. available resources and manpower until the proper officials can be notified. Until that time, however, the individuals assuming the most responsibility will necessarily be those officials/ individuals of highest rank who are available at the time. These individuals should seek to follow as nearly as possible the guidelines discussed in this plan, while simultaneously making an effort to notify superior officials of the situation so as to obtain verification or advice on their actions.

The Emergency Operations and Policy Groups **RESPONSIBILITIES** are outlined on pages 5 and 6. The Emergency Operations Group reports to the Emergency Operations Director, and the Emergency Policy Group reports to the President.

EMERGENCY OPERATIONS GROUP - RESPONSIBILITIES

Emergency Unit Title	Dept. Representative	Responsibilities
1. Emergency Operations Director	Public Safety	1. Activation of Emergency Plan 2. Designation of Operations & Policy Command Center Locations 3. Direction of Emergency Services 4. Direction of Law Enforcement Resources 5. Fire Control Coordination 6. Coordination of Search & Rescue effort
2. Public Information Coordinator	Public Affairs News Services	1. Dissemination of Public Information 2. Record Emergency Operations Activity 3. Relay Emergency Status Information to Policy Group
3. Student Assistance Coordinator	Student Affairs	1. Coordinate Student Assistance Program through Residential Education Program 2. Assist with Student Housing and Food Service 3. Establish Student Information Programs 4. Assist in Organizing Student Volunteer Service
4. Medical Care Coordinator	Stanford Hospital Cowell Health Center	1. Coordinate Medical Aid 2. Psychological Assistance
5. Facilities/Services Coordinator	Operations & Maintenance, et. al.	1. Utilities 2. Heavy Equipment (Rescue/Cleanup) 3. Procurement 4. Facilities Survey
6. Health/Safety Coordinatior	Environmental Health and Safety	1. Control of Hazardous Substances 2. Health & Safety Survey 3. Assist with Facilities Survey
7. Volunteer Force Coordinator	Human Resources Services	1. Organize Volunteers for Operational Use
8. S.L.A.C. Liaison	S.L.A.C.	1. Coordinate Cooperative Rescue Efforts
9. Communications Coordinator	Info. Resources	1. Coordinate Restoration of Telephone Services
10. Housing & Food Services Coordinator	Housing & Food Svc.	1. Organize and administer existing housing and food supplies 2. Manage underground "Safety Silos" access.
11. Stanford Homeowner Liaison	Homeowners Assoc.	1. Coordinate emergency efforts to assist homeowners. 2. Develop and maintain status information regarding Nixon and Escondido grade schools.

EMERGENCY POLICY GROUP - RESPONSIBILITIES

Members	Responsibilities
President	1. Acquisition of Resources From Outside the University
Provost	2. Short and Long Term Plan for Student Housing and Food Service
V.P. Administration	3. Formulation of General Public Information
V.P. Finance	4. Prioritize Salvage Operations
V.P. Development	5. Financing/Legal Problems
V.P. Public Affairs	6. Short Term Building Replacement Program
V.P. Information Resources	7. Faculty-Staff Replacement
V.P. General Counsel	8. Coordinate Survey of the Academic Program
Dean of Student Affairs	9. Coordinate Records Survey
S.U.M.C. Representative	10. Establish Target Date for Resumption of Limited Academic Schedule
S.L.A.C. Representative	
Support Staff (Admin./Clerical Assistance)	

EMERGENCY PLAN PRIORITIES

The Emergency Operations and Policy Groups will concentrate efforts on Priority I Objectives until these objectives are substantially met. Priority II and III Objectives will be addressed as resources become available. The Emergency Operations and Policy Groups will keep a written or verbal (taperecorded) record of all activities and decisions.

PRIORITY OBJECTIVES

PRIORITY I

A. Communication Network - Establish a communications network using available resources.
   Resources:
   1. Telephone (Communication Services)
   2. Operations Radio (Police and Operations & Maintenance Frequencies)
   3. Broadcast Radio (KZSU 90.1 FM)
   4. Stanford Amateur Ham Radio Group
   5. Messengers (Volunteer Forces)

B. Medical Aid - Evaluate medical services available and direct rescue forces regarding location of treatment facilities for injured.
   Resources:
   1. Stanford Hospital
   2. Cowell Student Health Center

C. Fire Suppression - Evaluate fires or fire hazards and use resources to control and evacuate.
   Resources:
   1. Palo Alto Fire Department (P.A.F.D.)
   2. Volunteer Forces

D. Search and Rescue - Appoint search and rescue teams and acquire transportation vehicles and equipment required.
   Resources:
   1. Public Safety Officers (Fire and Police)
   2. Volunteer Forces
   3. Operations & Maintenance (Equipment)
   4. S.L.A.C. (Equipment)

E. Utilities Survey - Evaluate condition of utilities and shut-down or restore as able (gas, electric, steam, water, sewer). Evaluate road system.
   Resources:
   1. Operations & Maintenance
   2. P.G. & E.
   3. Volunteer Forces (Faculty and Grad Students)

F. Hazardous Substance Control - Survey critical area and secure or clean-up as needed (radiological, biological, and chemical).
   Resources:
   1. Health & Safety/Health Physics
   2. Volunteer Forces (Faculty and Grad Students)
   3. Palo Alto Fire Department (P.A.F.D.)
   4. S.L.A.C.

PRIORITY II

A. Facility Survey - Evaluate facilities for occupancy.
   Residence Units have priority.
   Identify and seal off contaminated areas.
   Resources:
   1. Health & Safety/Health Physics
   2. Housing/Food Services
   3. Facilities Project Management

B. Shelter - Identify usable housing structures and organize personnel moves as needed.
   Resources:
   1. Housing/Food Services
   2. Dean of Student Affairs Office

C. Food/Drinking Water - Identify supplies and establish distribution system.
   Resources:
   1. Housing/Food Services
   2. Operations & Maintenance

D. Sewer System - Evaluate sewer system and identify resources that can be used.
   Develop latrines if needed.
   Resources:
   1. Operations & Maintenance

E. Communications - Establish a communications system with the campus community and advise everyone regarding availability of basic services.
   Resources:
   1. KZSU
   2. Loudspeakers on Police Vehicles
   3. Bullhorns

F. Animal Control - Contain/control and care for experimental animals on campus.
   Resources:
   1. Volunteers (Faculty, Graduate Students)

G. Criminal Activity Control - Establish police security system to control crime.
   Resources:
   1. Stanford Police Department
   2. Volunteer Force

H. Psychological Assistance - Establish a system to deal with cases of mental breakdown.
   Resources:
   1. Cowell Counseling
   2. Psychology Department
   3. Memorial Church Staff
   4. S.U.M.C.
   5. Stanford Help Center

PRIORITY III

A. Valuable Materials Survey - Identify, survey and secure valuable materials on campus.
   Resources:
   1. Library/Museum/Art Department Staff
   2. President/Provost Staff
   3. Volunteers

B. Records Survey - Identify, survey and secure all Stanford University records.
   Resources:
   1. Controllers Staff
   2. Human Resources Staff
   3. Registrar Staff
   4. President/Provost Staff
   5. Volunteers

C. Academic Survey - Survey academic departments and determine requirements to begin academic operations.
   Resources:
   1. Department Chairs and Faculty

2. Volunteer Forces

D. Supplies and Equipment - Develop system to renew flow of supplies and equipment from outside sources.
   Resources:
   1. Procurement Staff

It is expected that, as operations progress from Priority I through Priority II and III, the administrative control of the University will move from the Emergency Operations Organization back to the normal Stanford University organizational structure. The President or Acting President will determine when to deactivate the Emergency Operations Plan.

*** Addendum to EOP (as of February 26, 1991)

Worker's Compensation and Liability Insurance for Volunteers:

Any volunteer who reports to the Emergency Operations Center (EOC) will be covered under university insurance for liabilty and worker's compensation for activities (other than the use of personally owned vehicles) arising out of, and in the course of, their service to Stanford. In order to receive this coverage, volunteers should sign a roster at the EOC before they are assigned tasks by the Volunteer Coordinator.

Appendix 4
Checklist for Campus Residence Hall Evacuation Planning (AB 1967)

This checklist is designed to assist university and college disaster planners in complying with Parts 40 and 59 of the Education Code, Chapter C4.1, Section 66210, and Chapter 6, Section 94600, which require that campuses of the University of California, the California State University and private colleges and universities develop emergency evacuation plans for all forms of student housing owned, operated, and offered by the university, both on campus and off campus. Sections 3.09 (Emergency Planning and Information) and 3.13 (Fire Drills) of Title 19, California Code of Regulations have been considered in preparation of these guidelines. This checklist is also useful in developing an evacuation plan for any campus academic or administration building.

General Evacuation Considerations

An evacuation is the emptying of an occupied area and the transfer of occupants to another location. All occupants may be told to leave the structure and reassemble at a designated location. If a partial evacuation is ordered, some building occupants may be instructed to move to a safer portion of the building (UCLA Office of Environment, Health and Safety, 1991).

Evacuations may be initiated in response to various threatened or actual natural and technological hazards including a major earthquake, fire, hazardous material incident, dam collapse, civil disturbance, or flood. Evacuations are a part of a more general class of emergency operations relating to movement.

The objectives of emergency movement operations are to: expedite the movement of persons from hazardous areas, control evacuation traffic, provide adequate means of notification and transportation for persons with special needs, institute access control measures, and provide for the procurement, allocation and use of resources by means of mutual aid or other agreements (California Office of Emergency Services, State Emergency Plan Annex H, 1989).

This checklist addresses several issues in the evacuation of housing units in post-secondary educational institutions: plan development and responsibilities, volunteer evacuation coordinators, considerations for persons with disabilities, notification and warning, routing, transportation, designated assembly areas, education of students and staff, and plan maintenance. The guidance provided here is confined to campus residential housing evacuation planning. We strongly recommend that emergency evacuation planning for residential facilities be integrated with campus-wide evacuation plans. At the conclusion of the checklist, we offer some suggestions for evacuation planning not covered by the mandate of AB1967.

Plan Development and Responsibilities

At the outset, it should be emphasized that evacuation planning, whether for campus housing units or the entire campus, should be part of a comprehensive disaster preparedness, response and recovery plan which is understood and practiced by the entire campus community.

To prepare for site-specific housing evacuation plans, college or university safety officials should assemble data on:

- The population housed in campus residence halls and in off-campus housing owned or operated by the university.
- The number of persons with disabilities, the nature of their impairments and where they reside.
- Evacuation plans from the local jurisdiction in which the college or university is located. Since a major evacuation is likely to require resources beyond those of the university, coordination with local authorities is essential.

Responsibilities for university housing evacuation must be clearly specified in the plan, thoroughly understood by designated functionaries, and practiced on a regular basis. The major areas of responsibility are:

Function	Suggested Dept	Your Campus
Plan Development	Student Housing	_____
	Campus Police/Fire	_____
	Disaster Coordinator	_____
Plan Activation	Campus CEO, or designate	_____
Notification/Warning	Campus Police/Fire	_____
	Public Information	_____
	Executive Admin	_____
	Site Coordinator	_____
	Floor Wardens	_____
	Disabled Student Services	_____
Relocation Sites	Campus Police/Fire	_____
	Facilities	_____
	Student Housing	_____
	Food Services	_____
Volunteer Coordination, Training & Exercises	Campus Police/Fire	_____
	Student Housing	_____
	Disaster Coordinator	_____

Evacuation Site Coordinators and Floor Wardens

Students, faculty or staff from each residential facility should be recruited to serve as Site Coordinators and Floor Wardens. These volunteers perform several functions:

- One person per facility should serve as Site Coordinator and have responsibility for coordinating Floor Wardens and other volunteers at each individual residence.
- Floor Wardens should be appointed for each residence hall floor or in each building wing. The Floor Warden's responsibilities are to:
  - √ Assist the Site Coordinator in warning residents of an impending evacuation.
  - √ Give clear evacuation directions - location of stairwell, prohibition on use of elevators, destination. Check all rooms and direct flow of occupants through corridors and stairwells. Take emergency supplies, if possible.
  - √ Assist those with special needs, particularly persons with disabilities.
  - √ Systematically check all rooms to assure that they have been vacated.

- √ Take roll at the emergency assembly area.
- √ Receive training in site-specific evacuation procedures and know the location of emergency equipment and supplies.
- √ Have had training in first aid and CPR.

All site volunteers must also participate in drills and exercises conducted by public safety, student housing or other appropriate emergency officials.

Considerations for Persons with Disabilities[1]

Site volunteers should be aware of persons with disabilities who reside in their facilities. Floor wardens will ensure that persons with special needs are evacuated during an emergency or drill. An evacuation procedure should be prearranged between disabled residents and the Floor Wardens who will be assisting them. A useful procedure is to prepare a roster of self-identified people would like assistance during an evacuation:

Sample Roster Information

Name	Disability	Room	Phone	Spec. Needs
Name	Disability	Room	Phone	Spec. Needs
Name	Disability	Room	Phone	Spec. Needs

Individuals may have an unobservable disability which they may or may not identify before an emergency. Such unobservable disabilities might include arthritis, a cardiac condition, chronic back pain, or asthma. These individuals may need additional assistance during an evacuation. After a disaster, anyone may become disabled, so the information and procedures which follow may be applicable in a number of situations.

Some disability-specific procedures:

- Visually Impaired Persons

  Tell the person the nature of the emergency and offer your arm for guidance. This is the preferred method when acting as a "sighted guide"

1 This section is paraphrased at length from the UCLA Emergency Procedures Manual (Office of Environment, Health and Safety) April, 1991.

As you walk, tell the person where you are and where obstacles are located. When you reach safety, orient the person to the location and ask if further assistance is needed.

- Hearing-Impaired Persons

  If the residence hall is equipped with audible fire alarms, persons with impaired hearing may not perceive an alarm. Two alternative methods of warning are:

  Write a note to tell the person of the situation, the nearest evacuation route and the assembly area. SAMPLE SCRIPT - "FIRE - Go Out the rear door to the right and down. NOW. Meet on the front lawn.")

  OR: Turn the light switch on and off to gain attention, then indicate through gestures or in writing what is happening and what to do. Do not use this procedure if you suspect a gas line rupture.

- Person Using Crutches, Canes or Walkers

  In evacuations, these individuals should be treated as if they were injured. Carrying options include using a two-person lock-arm position or having the individual sit on a sturdy chair, preferably a chair with arms.

- Non-Ambulatory Persons (People Who Use Wheelchairs)

  Most non-ambulatory persons will be able to exit safely without assistance if they are on the ground floor.

  The evacuation needs and preferences of non-ambulatory persons vary. Always consult the person as to his or her preference regarding:

  √ Ways of being removed from the wheelchair and whether there are essential items that must be taken along.

  √ The number of people necessary for assistance.

  √ Whether to extend or move extremities when lifting because of pain, catheter leg bags, braces, etc.

  √ Being carried forward or backward on stairs.

  √ If after-care will be necessary if they removed from the wheelchair.

  Remember to check the evacuation route for obstructions before assisting the person to the exit. Delegate other volunteers to bring the wheelchair. When the wheelchair is left behind, remove it from the stairwell and place it so that it does not obstruct egress. Reunite the person with their wheelchair as soon as it is safe to retrieve it.

Evacuation Notification and Warning

Once the decision has been made to evacuate residence halls, the department responsible for evacuation notification and instructions should alert residents by all appropriate means. These may include radio or TV announcements, sirens, mobile loud speakers, hailers and personal contact. Whenever feasible, mobile units should be dispatched to the areas to be evacuated.

If an emergency event has not occurred but is imminent, warning and public information operations will take place under extreme time pressure. General and site-specific warning messages and emergency public information prepared ahead of time will accelerate these operations.

Evacuation information provided to campus housing residents should include the following:

- Why residents must evacuate.
- Routes to use in exiting the facility.
- The location of assembly points, both preliminary (a safe location outside the residence hall).
- Request for cooperation with Site Coordinators and Floor Wardens in exiting housing units.

A spokesperson for the campus must maintain close coordination with the local news media so that they can help in providing timely evacuation announcements.

Identifying Evacuation Routes

Under the supervision of campus safety officials, Site Coordinators should develop plans for exiting individual housing units with careful consideration of the different hazards that may be faced. Maps for each floor or wing of the housing unit should be drafted to outline safe exit routes to be followed in an emergency.

- Obtain floor maps for each housing unit from architect services or facilities.
- Conduct a walk-through of each floor or wing of the housing unit. Locate all fire extinguishers, manual fire alarm pull stations and exits.

- Evacuation maps must be clearly titled and contain emergency information in 3/16-inch non-decorative lettering.

EXAMPLES

- "Evacuation map for_____ floor (wing) of_____ Building" in large bold letters.
- Dots indicating the location of exits (green), fire extinguishers (red), and emergency assembly area (blue).
- Triangles indicating utilities:
  Ⓖ Gas Ⓦ Water Ⓔ Electrical
- Circles indicating fire protection equipment:
  Ⓢ Sprinklers Ⓕ Fire Extinguisher Ⓕ Ⓐ Fire Alarm
- Include a "Do not use elevator during emergencies "message on your map.
- Post the maps in high traffic areas of the building at every stairwell landing, in elevator lobbies and immediately inside all public entrances to the building. The maps must be posted so that they describe the represented floor level and can be easily seen upon entering the floor level of the building.
- All route planning should carefully address the needs of persons with disabilities:

  √ Rosters of persons with disabilities and the nature of these disabilities should be compiled (and updated) for each building (See section entitled "Some Considerations for Persons With Disabilities").

  √ If necessary, identify alternate routes for the evacuation of those who could not be safely and rapidly evacuated using the designated routes.

  √ Establish a "buddy" system in which able-bodied volunteers are recruited and paired with persons whose disabilities would create special evacuation needs. The volunteer should become familiar with the special evacuation needs of his/her buddy and would assist that person if an evacuation was ordered. This system would also free the Floor Wardens to perform other evacuation duties.

Assembly Areas

Evacuation planners should identify an emergency assembly area within a reasonable walking distance of the campus housing facility. Building occupants will assemble there after a disaster to account for evacuees, assess injuries, apply first aid, and await further instructions or transportation to mass care facilities.

The assembly area should be open, away from buildings, power lines, trees and other overhead hazards. It must also be accessible to vehicles dispatched to transport evacuees to other assembly points or mass care facilities. The location of the assembly area must be planned so that access to the building by emergency workers and equipment is not impeded.

Education, Training and Plan Maintenance

Given the rapid turnover of the student population and the extent to which a campus housing evacuation plan is dependent on volunteers, it is imperative that there be frequent training sessions and drills, and written materials detailing hazards and appropriate response.

Campus safety officials who are responsible for evacuation planning and activation of the plan should visit each housing facility annually to remind residents and orient new students, faculty, and staff to the campus disaster plan and evacuation procedures.

The housing unit Site Coordinator should provide verbal details of the building's evacuation procedures, introduce the Floor Wardens, and recruit new Floor Wardens and/or recruit new Floor Wardens as well as "buddies" for persons with special evacuation needs. Printed materials should also be given to all housing unit residents. Provide audio tape or Braille instructions for the visually impaired.

There should be special training sessions conducted by the safety office for Site Coordinators, Floor Wardens, and volunteers who assist persons with disabilities.

Regular drills, both announced and unannounced, to reinforce information and instruction provided verbally. All exercises should be carefully evaluated. By examining every aspect of the exercise and gathering feedback from a sufficient number and variety of participants and observers, strengths and weaknesses of the plan will be identified. These reviews

along with action reports on actual emergencies will provide the basis for improving and enhancing the plan.

Linking Building Evacuation Plans with the Campus Plan

While the mandate of AB1967 applies only to residence hall evacuation, some additional recommendations are provided below to assist college and university emergency managers integrate plans for the evacuation of residence halls with more general campus evacuation plans.

These recommendations are grouped under two categories, transportation and evacuation routes.

TRANSPORTATION

- Assemble information on transportation resources available to the college or university to carry out the evacuation, and an inventory of resident student-owned vehicles should private transportation be required.

- The campus agencies that will have key roles in evacuation transportation operations and Traffic/Access control should be identified (e.g. Campus Police/Fire, Campus Bus/Shuttle, Facilities/Operations and the Parking Office).

- Some members of the campus community will not have access to a vehicle and some people with disabilities or injuries may require special transportation assistance.

- The number of persons who need transportation assistance will vary substantially by time of day and day of the week. Buses, vans, ambulances, and other transport vehicles should be requested from transportation providers through established channels.

- Units will be dispatched to pre-designated campus assembly areas to transport evacuees to mass care facilities. Drivers must have clear instructions on:

  √ Routes to take, including the conditions of roads, bridges and freeway overpasses.

- √ The location of assembly points, both preliminary (a safe location outside the residence hall as well as the pick-up point for transportation to other assembly areas), if the immediate area of the evacuation is deemed to be unsafe.
- √ What to do if a vehicle breaks down en route to the assembly point.

EVACUATION ROUTES

- Campus safety officials, in cooperation with neighboring jurisdictions, will identify before a disaster the best routes from the endangered area to mass care facilities, in light of the following:
  - √ The size of the population to be moved.
  - √ Road capacity.
  - √ Roads that could become impassable in the event of specific hazards.
- For areas not covered by the site-specific plans, the best evacuation routes will have to be selected at the time of the hazard event.
- As the emergency situation progresses, campus safety officials will request regular updates from law enforcement and other field personnel as to the condition of the road network. These changes in evacuation routes will be communicated by safety officials to appropriate evacuation coordinators.

Appendix 5
State and Federal Disaster Assistance: An Outline of the Cost Recovery Process[2]

In a declared disaster (presidential or gubernatorial), the sequence of events in the cost recovery process is fairly predictable.

I. The disaster

II. Local emergency proclamations

III. Governor declares State of Emergency

IV. President makes Declaration of Disaster

V. Applicants briefing - Convened by state and federal disaster officials, this briefing is the initial contact for most local government and public entities (including public and private colleges and universities) which will apply for assistance. The disaster assistance and cost recovery procedures are explained and applicants are given three basic forms:

Notice of Interest - This form is an acknowledgment of damage to facilities on campus and gives a general indication of the type of damage and services needed (e.g., "building damage," "transportation disruption," "debris removal"). [See page 59.]

Designation of Agent - This form identifies the person within the university who is the official contact person with state and federal disaster officials. [See page 60.]

Damaged Facilities Form - The university is asked to identify the specific facilities on campus which are damaged. At this stage, descriptions of damage are not expected to be highly detailed (e.g., "Jones Hall has major structural damage and asbestos contamination"). [See page 61.]

Completion and submittal of these basic forms determines the need for engineers and other specialists to assess the scope of damage and associated costs.

[2] Adapted from the Federal Disaster Assistance Program Documentation and Cost Recovery Handbook, The California State University, Office of the Chancellor, January, 1992 (P.O. Box 3502, Seal Beach, CA 90740-7502).

VI. Federal/state team inspection, Disaster Survey Report (DSR) form preparation and submittal - The DSR form requires a detailed description of damage to a facility, and defines the scope of work to restore the facility and associated cost estimates (this form is completed by federal/state inspectors, not by university officials). [See page 62.]

VII. DSR review by the Federal Emergency Management Agency (FEMA) - Options include approval, rejection, adjustment of cost estimates. Appeal is available.

VIII. Repair process proceeds and requests for reimbursement submitted to FEMA.

IX. Receipt of reimbursement or appeal - The bases for appeal can be mistakes in eligibility, scope of work required modification, reimbursement was too low, or eligible costs were excluded. The state will assist applicants with the appeals process and all appeals in California are channeled through the Governor's Office of Emergency Services.

X. Project completion and final inspection.

XI. Federal/state audit

XII. Final settlement (final accounting) - Auditable records must be retained for three years after the final settlement.

FEDERAL EMERGENCY MANAGEMENT AGENCY

NOTICE OF INTEREST

If APPLYING FOR FEDERAL DISASTER ASSISTANCE

OMB NO. 3067-0033
Expires May 1990

DECLARATION NUMBER	PROJECT APPLICATION NUMBER	NOI DATE
FEMA - - DR	_____ - _____	

The purpose of this form is to list damages to property and facilities so that inspectors may be appropriately assigned for a formal survey.

REQUIREMENTS FOR FEDERAL DAMAGE SURVEYS

A. DEBRIS CLEARANCE

- ☐ On public Roads & Streets including ROW
- ☐ Other Public Property
- ☐ Private Property *(When undertaken by local Govt. forces)*
- ☐ Structure Demolition

B. PROTECTIVE MEASURES

- ☐ Life and Safety
- ☐ Property
- ☐ Health
- ☐ Stream/Drainage Channels

C. ROAD SYSTEM

- ☐ Roads ☐ Streets ☐ Traffic Control
- ☐ Bridges ☐ Culverts ☐ Other *

D. WATER CONTROL FACILITIES

- ☐ Dikes ☐ Dams
- ☐ Drainage Channels ☐ Irrigation Works
- ☐ Levees ☐ Other *

E. BUILDINGS AND EQUIPMENT

- ☐ Buildings and Equipment
- ☐ Supplies or Inventory
- ☐ Vehicles or other equipment
- ☐ Transportation Systems
- ☐ Other *

F. PUBLIC UTILITY SYSTEMS

- ☐ Water
- ☐ Sanitary Sewerage
- ☐ Storm Drainage
- ☐ Light/Power
- ☐ Other *

G. OTHER *(Not in the above categories)*

- ☐ Park Facilities
- ☐ Recreational Facilities

* Indicate type of facility.

NOTE: If Private Non-Profit, provide name of facility and/or Private Non-Profit Owner.

NAME OF POLITICAL SUBDIVISION OR ELIGIBLE APPLICANT	PRIVATE NON-PROFIT	COUNTY
	☐ Yes ☐ No	

AGENT/TITLE

BUSINESS ADDRESS *(Include Zip Code)*

BUSINESS TELEPHONE *(Include Area Code and extension)*	HOME TELEPHONE *(Include Area Code)*

FEMA Form 90-49, AUG 87 REPLACES EDITION OF MAY 82, WHICH IS OBSOLETE.

State of California
OFFICE OF
EMERGENCY SERVICES

State Application No. OES_____
Federal Disaster FEMA-_____-DR
Federal P.A. No. _____

DESIGNATION OF

APPLICANT'S AGENT RESOLUTION

BE IT RESOLVED BY THE _____ OF THE _____

THAT _____, _____,
(Name) (Title)

OR

_____, _____,
(Name) (Title)

OR

_____, _____,
(Name) (Title)

is hereby authorized to execute for and in behalf of the _____, a public entity established under the laws of the State of California, this application and to file it in the Office of Emergency Services for the purpose of obtaining certain federal financial assistance under P.L. 93-288 as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, and/or state financial assistance under the Natural Disaster Assistance Act for _____, which occurred in _____ of _____.
(fire, flood, earthquake, etc.) (month and year)

THAT the _____, a public entity established under the laws of the State of California, hereby authorizes its agent to provide to the State Office of Emergency Services for all matters pertaining to such state disaster assistance the assurances and agreements required.

Passed and approved this _____ day of _____, 19____

_____
(Name and Title)

_____
(Name and Title)

_____
(Name and Title)

CERTIFICATION

I, _____, duly appointed and _____ of
(Title)
_____, do hereby certify that the above is a true and correct copy of a resolution passed and approved by the _____ of the _____ on the _____ day of _____, 19.

Date: _____

_____
(Official Position)

_____
(Signature)

OES Form 130 (Rev 12/91) DAD Form

BEST COPY AVAILABLE

State of California
OFFICE OF
EMERGENCY SERVICES

EXHIBIT "B"

Page _____ of _____ Pages

LIST OF PROJECTS

STATE NATURAL DISASTER ASSISTANCE ACT PROGRAM/
FEDERAL PUBLIC ASSISTANCE PROGRAM

APPLICANT'S NAME: _____

*CATEGORY: ( )A ( )B ( )C ( )D ( )E ( )F ( )G

ITEM NO.	Location	Description	Scope of Work	Damaged in Prior Disaster (Y/N)

*Separate form should be completed for each category of work

OES 95 (Rev. 10/98)

FEDERAL EMERGENCY MANAGEMENT AGENCY

DAMAGE SURVEY REPORT - DATA SHEET

1. DECLARATION NO. FEMA- DR-

2. DSR NO. 91594

SUPP TO DSR NO.

PART I - PROJECT DESCRIPTION

APPLICANT NAME/COUNTY

3. PA IDENTIFICATION NO. __ __ __ - __ __ __ __ __

10. PROJECT TITLE

4. INSPECTION DATE

5. PROJECT NO.

11. DAMAGED FACILITY

6. % COMPLETE

7. WORK ACCOM BY F C FC

12. FACILITY LOCATION

8. FINAL DSR YES ☐

9. CATEGORY

13. DAMAGE DIMENSIONS/DESCRIPTION/SCOPE OF ELIGIBLE WORK

DIMENSIONS:

DESC/SCOPE:

14. INSP NO.	15. NAME OF FEDERAL INSPECTOR (Print)	16. AGENCY CODE	RECOMMENDATION Y N	ATTACHMENTS
18. INSP NO.	NAME OF STATE INSPECTOR (Print)	AGENCY CODE	RECOMMENDATION Y N	ATTACHMENTS
19. NAME OF LOCAL REPRESENTATIVE (Print)			CONCUR Y N	ATTACHMENTS

PART II - ESTIMATED COST OF PROPOSED WORK

ITEM	CODE	MATERIAL AND/OR DESCRIPTION (a)	UNIT OF MEAS (b)	QUANTITY (c)	UNIT PRICE (d)	COST (e)
1						
2						
3						
4						
5						
6						
7						
8						

20. EXISTING INSURANCE TYPE - F $ G $

21. TOTAL $

PART III - FLOODPLAIN MANAGEMENT/HAZARD MITIGATION REVIEW

22. IN OR AFFECTS FLOOD PLAIN OR WETLAND	23. FLOODPLAIN LOC	24. % DAMAGE	25. DISASTER HISTORY	26. LAND USE	27. FPM REC
F W N	1 2 3 4 5	1 2 3 4	Y N U	U1 2 3 4-D1 2 3 4	1 2 3 4 5 6 7

PART IV - FOR FEMA USE ONLY

28. AMOUNT ELIG $	29. ELIGIBLE Y N S V	30. SPECIAL CONSIDERATIONS	31. FLOODPLAIN REVIEW NO.	32. WORKSITE NO.

33. INSURANCE COMMITMENT REQUIRED F Building $ Content $ G Property $ Content $

34. DURATION (Years) F: B: C: G: P: C:

35. COMMENTS/CHANGES

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FIRST REVIEW (Signature)	DATE	SECOND REVIEW (Signature)	DATE

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